The Builder.

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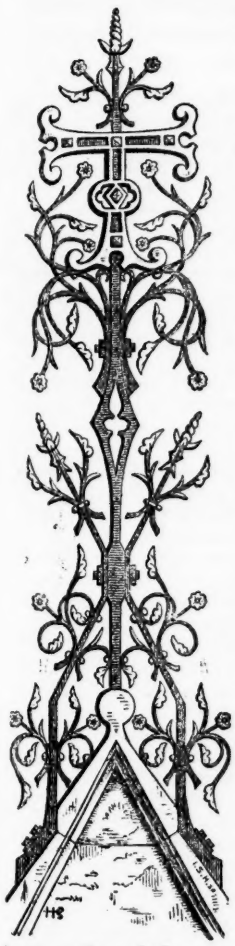
The Building Materials and Manufactures in the French Division of "The Exhibition."



THE mineral products, and the manufactured articles and contrivances designed for use in buildings and construction, which are contained in some of the eastern and northern recesses of the French Court of the Exhibition building, or may be found in the gallery next Cromwell-road, and in the Machinery Annex, and are catalogued in Classes 1, 2, and 10, though as we have said, quite inadequate to represent the resources of France, or the application of products to the uses of practical architecture by the French, deserve nevertheless careful examination. Indeed, it is more immediately desirable that we should look at such foreign portions of the Exhibition, than that we should lay before our readers, notes of those home-produced exhibited articles, the merits of which are less likely to pass from before our eyes in October next. We continue therefore, at least for a short time, our examination of one of the courts in the foreign division of the building.

Mr. Ledier, of Auffay, beyond Dieppe, exhibits bricks of good quality, which are made by pressure without use of water, and baked with coal, by what is called a new process, but is not clearly described. They have been used in the breakwater of Dieppe and the hospital of the same place, the two hospitals of Cherbourg, and other buildings; and many of them have been exported, not only to French, but to British colonies.

Roofing-tiles of peculiar pattern, "*tuiles castillon*," adapted for a light covering on a low pitch of roof, are exhibited by Messrs. Faconnet & Co., of Paris. Much attention has been given lately in France, to forms of tiles for roofs. There are some other exhibitors of articles of the same class, but different in form: Mr. C. A. Gastellier, of Montanglaust (Seine-et-Marne), and Mr. E. H. Dumont, of Roanne (Loire), are amongst them.

Mr. P. de Tinseau, of Saint-Ylie, Jura, exhibits, besides the column in the Eastern Annex Court, specimens of the Jura marble, as in the form of a polished slab about 16 feet in length, and in three portions of balustrading similar to the balustrades of the Pont au Change, Pont de Solferino, and new Pont Louis Philippe, Paris, the two last designed by Mr. Savarin, and the first-mentioned by Mr. Vaudrey. The varieties of the material here shown are two, of a yellow and a red tint. This marble was not used in Paris till within the last five years. The Algerian Onyx marble is displayed in several stalls and cases of the French Court, including the space devoted to Algeria; so that, commencing with the stall for the special exhibition of the material by Messrs. Alphonse Pallu & Co., the translucidity and general beauty, and the variety and ornamental adaptability, are well set forth. The marble was discovered by Mr. Delmonte in 1849; though doubtless the locality in which it was found, had furnished the material to the Romans. It may however be regarded as one of the acquisitions of the last ten years, not having been brought to France in large quantities till after the formation of the "Compagnie des Marbres Onyx de l'Algérie" in 1858. Pure white, brilliant red, golden yellow, or hues of green, with every variety of striation and flocculence, exist in this beautiful material. The art-manufactory in Paris, in the Rue Popincourt, well deserves a visit. The establishment includes *ateliers* for the production of ornaments in bronze. One of the characteristics of French art, is the union of two or more materials, in an object of art-manufacture, in such manner that each may, so to speak, send forth the full expression of the beauty of the other. The cost of the small staircase, of this marble, of a house in the Champs Elyssées, which we mentioned last year in one of our articles on Paris, was 200,000 francs (8,000*l.*). The effect there, is in our opinion scarcely proportionate to the cost. For balusters, as well as articles of small dimension, the material will doubtless be in demand in London, where it should be obtainable as cheaply as in Paris.

Roofing slates are exhibited by Mr. E. Maire of Plessis-en-Coësmes (Ille-et-Vilaine), and Mr. X. Marie of Moisdon (Loire-Inférieure); as well as from Savoy, as already mentioned. Slate for billiard-tables is exhibited from the quarries of Riadan, near Bourg-des-Comptes (Ille-et-Vilaine).

The mill-stones from the quarries of La Ferté-sous-Jouarre (Seine-et-Marne) shown by several exhibitors, appear to have preserved their reputation since 1851, when their material was reported on as superior to granites and sandstones, both on account of the hardness, and the little cavities; which last caught the grain momentarily whilst the stone revolved, and allowed the grain to be more quickly crushed. The stones, called *moulages*, are composed of several pieces, strongly cemented or fastened together and the whole bound with hoops. They represent the originals, on the same principle, of mill-stones which we noticed in speaking of the British Division. The mode of quarrying plaster-stone is shown by drawings in Class 1, and near them is a model of the mill for grinding, in use at Chelles (Seine-et-Marne), "Système Parquin" as it is called. Stones, in this case set upright, are so contrived as to roll over hard and deleterious substances without crushing them, so that the latter can be picked up by a workman who has the duty. Thus, pure and well-burnt plaster is ensured.

The artificial stone called "béton aggloméré," of Messrs. F. Coignet, *Frères*, of Paris, is evidently a material of considerable importance: but does not differ from some similar compositions used in England. The "béton" in the Exhibition, is compounded of ten parts sand (for which ashes may be substituted), one part slacked lime, and three-quarters of a part of cement. The composition in the state of a paste, is introduced into a mould in thin layers, which are each, so to speak, *punned in*, by quick strokes of some species of rammer, so as to render the artificial stone very hard and compact, and insensible, as represented, to action of the atmosphere, or that of fresh or sea water. The commonest and cheapest lime, any kind of sand available or required for colour, and comparatively unskilled labour, may be used. Not only is the composition used in pavements, steps, balustrades, sculpture, panels and ornaments, and in small structures as *fontaines;* but large buildings, bridges, and roadways, combined with the *trottoirs* and sewers, are proposed to be moulded of it, entire, and reservoirs and dock-basins to be formed of it. Buildings of this character, "*constructions monolithes*," indeed, have been completed at St. Denis, and elsewhere in the environs of Paris. More information than is obtainable at the Exhibition, may perhaps be had of the agents in London, Messrs. Duché & Chevassus of Little Carter-lane. The larger kind of "constructions" are exemplified in a model of a vault of a theatre, and its supporting walls, and in one of a "rue souterraine," or subway, and sewers and channels for water and gas, each model apparently intended to represent the *béton* formed as above described, or as in block, of the size of the theatre, or the width and length of the street. Judging from what is exhibited, there would be difficulty in the case of ornament, as usual in processes of the kind, in getting the undercutting and relief. It is contended that the material is not only very durable as compared with stone, and perhaps brick; but that it is much cheaper than either. Dressings for a 3 feet 9 inches window-opening may be had for 150 francs (6*l.*). Slabs suited for kitchen pavement cost 3s. 3d. the French mètre superficial; and "monolith slabs," suited for stables, 4s. 10d.; and "monolith constructions of all kinds" may be 16s. to 2*l.* 8s. the cubic mètre. Some of the prices are too high, even supposing the distortion of the lines in terra-cotta to be avoided in this "*béton*." Of that defect referred to, there is little in the terra-cotta exhibited by Mr. E. F. Garnaud, *fils*, of Paris, which was honourably mentioned in 1851.

Messrs. Lippmann, Schneckenburger & Co. of Paris, exhibit various arrangements of architectural details to show the advantages of their, so-called, *similimarbre-similipierre*. This material, though spoken of as one, may be finished to have the appearance of scagliola, or the best quality of Keene's cement, or fine-grained stone. It is put forward as excelling some other imitative materials, because, besides being incombustible and repellent of moisture, it has not to be burnt after having been worked into form, and can therefore give lines of architecture and forms of sculpture without distortion: moreover it need not be painted. It is considered preferable to either wood or iron, for the construction of portable houses in warm countries, and as more favourable to decoration of such houses. In those buildings, the material would be used in slabs, fixed in iron or wooden framing. A considerable number of forms and ornaments, architectural and sculpturesque, are obtainable in this material, as to the nature and durability of which, further information would be desirable. Its resistance to crushing however is given, or as 161 kilogrammes 8 hectogrammes per "square" centimètre; and it appears to us to be used successfully as of late, in the illuminated "colonnes Vespasiennes" on the Boulevard de Sebastopol. Not less deserving attention, for their ornamental character at least, are the "works in stucco," a model of the side of a room panelled in scagliola, and a table-top, and a column and capital, beautifully ornamented, by Mr. J. Crapoix of Paris.

Mr. Léon Dalemagne, of Paris, who was much restricted in space, has filled a compartment in Class 2, with about one hundred specimens of stone of various kinds, some carved as ornament, to show results in stone, to which his *silicatisation* process has been applied. The specimens, as they can be seen under glass, form an important collection; though, generally, they are very small fragments placed in a bad light. We may here, once more repeat, that all specimens of building materials, submitted to the weather, should have a date *cut* upon them, when so exposed. Specimens of the same stone, one of which is treated according to a particular process and the other left in the natural state, for comparison, should be not only from the same block, but left broken, as are some of Mr. Delamagne's, in the form which may be best for this identity to be at once seen. The present collection is, we say, interesting: but it is necessarily insufficient for the demonstration of what the jury of admission regarded as a conclusion—already mentioned by us. It is not our fault if we have not long ago given our readers some information of the latest experience,

or state of opinion in France, on the silicatisation process. We have however seen it in application at Amiens, where we have noticed the present state of those parts of the restored masonry on which it was first employed, and have heard what was to be said by workmen. The masons engaged on the cathedral works, under Mr. Massenot and Mr. Viollet-le-Duc, say that having happened to have to work stone which previously had been treated by the process, they have found the hardness very great in comparison with that of the stone as ordinarily worked before application of the solution; and an examination by us, of the most exposed parts of the towers, terminated now several years, corroborated statements as to the alteration of the external portion at least, of the stone, into a protecting crust, and failed to disclose any decay. Amiens however, though looking like a manufacturing town, has not the atmosphere of a smoky English one. The buildings to which the silicatisation has been applied in France, are very numerous. They include the cathedral of Notre Dame, Paris, where the process was first applied in 1851; the cathedrals of Chartres, Lizieux, Périgueux and Amiens; the palaces of the Louvre, Versailles, the Luxembourg, Fontainebleau, and St. Cloud; the Arc de Triomphe de l'Étoile; the École des Beaux Arts (the older portion only, we believe); the Conservatoire des Arts et Métiers; the Palais de l'Institut; the Palais de Justice, Rouen; and many other buildings. The process is also mentioned as having been employed in London, at the Houses of Parliament, Henry VII.'s Chapel, and Westminster Abbey. The application of the solution is as easy as watering plants in a garden. The reports of architects, and the decisions of different ministers which led to the present extensive use of Mr. Delamagne's *silicatisation*, date from 1853 to 1855: we could wish for later conclusions on the subject. The process failed to elicit commendation from the English Parliamentary Committee appointed to inquire as to the Houses of Parliament. In the same class Mr. Kullmann, of Lille, exhibits certain chemical products, and new applications of them in the manner of painting; and, in his case, are two or three specimens of stone-carving, one of them of a green colour, which no doubt have been treated with a silicate. Information by the exhibitor, however, is wanting; and in the absence of that, we may mention that Mr. Dalemagne is careful to discriminate between the imbibition characteristic of his process rightly used, and a mere coating, which latter seems to be the character of Mr. Kuhlmann's application of Fuchs' "soluble glass," as imputed in a report to the "Académie Nationale, Agricole, Manufacturière, et Commerciale," printed this year in Paris.

The French are apt at the manipulation of cement; owing much to the early investigations of Vicat. A namesake of the French engineer and experimentalist exhibits specimens of an artificial cement from Grenoble (Isère); and there are water-pipes of the material from the same place, exhibited by Messrs. Algoud, *frères*, Dupuy de Bordes & Co. Cement called *du bassin de Paris* is exhibited by Messrs. Lingée & Co. But the most important material of this sort, seems to be the "Ciment Hydraulique de la Valentine" exhibited by Messrs. Désiré Michel & Co. of Marseilles. With the *béton* made with it, houses and a church have been built, and the sewers have been formed in the latter town; and in the fence-walls or copings of the breakwaters at Marseilles and Cette, the same material is used. In the construction of sewers, by the aid of a simple arrangement of boarding, as on the principle of *pisé* construction, the whole vault is laid so as form one piece; as also may be the sides and invert. The sewer in the Avenue des Ternes, Paris, which was in progress last year, was constructed somewhat on this system,—or not in regular masonry, as were the larger sewers, or at least the sewer commenced in 1860, in the Rue Château d'Eau, portions of which we have walked along. Slabs for filling in between floor joists, if not for paving, are cast in a frame, comprising a dozen squares in a row, the whole being tightly keyed at two of the angles, and as easily taken to pieces when the slabs are set. The cement of Montcerf (Seine-et-Marne) exhibited by Messrs. Liénart & Charpentier, may be added to the list of materials, of which pipes for drainage and water-supply may be manufactured.

The "Ciment-Porcelaine" exhibited by Mr. Candelot is applied on walls of rooms, and floors, as a protection against moisture and saltpetre, replacing oil-painting. It is said to stick well to iron and glass; to stand washing; to keep the brilliancy of varnish, to receive any addition of tint and decoration, and to dry three coats in one day, and to be approved by the Société Centrale des Architectes. The *Ciment Encaustique*, and *Ciment Pierre*, are modifications of the other cement; the latter being designed to replace bitumen for *trottoirs* and terraces.

The "mastic" exhibited by Mr. L. Machabée, of Paris, and bearing his name, is a bituminous material, intended to counteract humidity, and to preserve wood and metals. A vessel formed of thin paper may be so coated with it as to be watertight. It may be well adapted for use in building in water. A metallic varnish, put forward as adapted for preservation of metals, and as drying very rapidly even in water, is exhibited by Mr. P. H. Dupont of Cherbourg. It is said to come to 4 to 5 centimes the superficial mètre, and to have been favourably reported on by the chief public departments.

We have already named the specimens of rolled iron, in numerous forms of section, of Messrs. Dupont & Dreyfus, of Ars-sur-Moselle. Their "fers à double T" extend to 40 mètres length. Messrs. James Jackson, Son & Company, of Saint-Seurin-sur-l'Isle (Gironde), exhibit bars, carriage-springs, and cannons, of Bessemer steel. Messrs. de Dietrich & Co. of Neiderbronn (Bas-Rhin) have a large collection of cast and wrought-iron, and puddled steel, in various forms, including a large crucifix. The forms are wanting in finish; but one of the lamp pillars is good in design. Messrs. Bonnor, Degrond & Co. of Eurville (Haute-Marne); Mr. E. O. Martin, of Sireuil (Charente); Messrs. Durand & Guyonnet, of Perigueux (Dordonne), and several others, are exhibitors of iron obtained with use of wood as fuel in various operations of refining and casting. Algeria is one of the countries where iron ore is found. Copper manufactured, as mentioned in our last, in the form of pipes and wire, is shown; and by Messrs. Létrange & Co., in the form of an evaporating-dish, 8 feet 1 inch in diameter, weighing upwards of 13 cwt.

Messrs. le Baron de Rostaing & Baudouin *Frères*, exhibit results of applications of a process of Mr. de Rostaing, for obtaining different kinds of fine granulation of metals by the action of centrifugal force upon the metals in a state of fusion, and the method of obtaining oxides and salts. Some of the results appear to be important to engineers, as concerning the pigments used in the painting of iron-work, as well as the production of steel. Amongst the applications mentioned, is one for the aëration of liquids. Would this be available for improving the quality of water supplied to a town? The patent, sealed in England, may give information. We learn from the report of the "Société d'Encouragement pour l'Industrie Nationale," dated 23rd November, 1859, that the mechanism of dispersion consists mainly of a circular plate, slightly concave, and adjusted and set perfectly horizontal, which is made to revolve at the rate of 2,000 turns a minute, and of a funnel by which the fused metal drops on to the plate, these two principal parts of the apparatus being lined with refractory brick. It is suggested that the metal might be dispersed in water instead of air, and other useful results obtained.

Referring to articles of one description exhibited in Class 1, evidence has been quoted to show that wrought-iron girders of such forms and scantlings as would be commonly required, have not been easily procurable in this country, and that orders had consequently been sent to France and Belgium. The great variety of forms in the Eastern Annex, which we lately spoke of, certainly, is seen most in angle-bars and casement bars, or articles of like small-sized pattern; but there are a sufficient number of rolled joists and girders, to have made us receive the statement in question with surprise. We cannot however doubt the accuracy of it. It may be questionable, whether manufacturers should display articles of extraordinary dimensions, unless prepared to supply them in quantity, and of quality equal to the specimens exhibited. Indeed some of these persons have overreached themselves. The rolled iron girder of considerable length, which occupies the most prominent position within the Eastern Annex, is not a good piece of work; and in fact, it exhibits a blister or protuberance that ought to be a beacon or warning to any architect or engineer thinking of using girders rolled at the works where the specimen was produced.

The display of castings which may be ranked with works of fine art, we spoke of in early articles, and it has assuredly not been overlooked by any visitor to the Exhibition passing along the nave, or entering the French Court, or walking in the Horticultural Gardens. Groups of sculpture and single figures, fountains, candelabra, or lamp-pillars, such as are in common use in the streets of Paris, park-gates, *perrons* and conservatories, rails for squares, balconies, staircases, and altars in churches, everywhere show the appreciation which there is of art in France, and testify to the skill in the production of it in those materials which, having much of the effect of bronze, combined with low cost, allow of the decoration of the foreground and accessories of edifices, as the terraces and gardens, by sculpture, and by minor but important adjuncts to the regular architecture. Messrs. Durenne, Barbezat, Ducel, Baudrit, Thiébaut, Ducros, and Miroy, and Oudry for the coating of iron with copper, are the principal names.

Those who are interested in the subject of artesian-well-sinking, may with advantage look at the models and tools which are in Classes 1 and 10; though some of them are so placed that they cannot be completely examined. Messrs. Mulot, *père* and *fils*, & Dru, of Paris, show with their models and specimens, a section of the well at Grenelle, which we suppose was their work. Messrs. Degousée & Laurent, of Paris, authors of the "*Guide du Sondeur*" and of a *brochure* relating to the subject of wells in Algeria, exhibit besides a large collection of apparatus, models showing the mode of proceeding in the Sahara, and photographs depicting the *astonishment* of "the natives" at the rising-water. Each exhibition includes cylindrical pieces of stone which were raised, giving some idea of the labour involved in passing through rock. The illustration of the sinking of the Passy well, in the court next the nave, comprises besides models of the tools, and a drawing of the engine-house and *atelier*, a section including the products themselves as extracted. The chief ingenuity displayed in the case of this well, was in the construction and sinking of the tube or tubes; the tools may be said to have been but two, a trepan, or great toothed chisel, moving vertically and breaking the soil or rock, and reducing it to dust, and a valved scoop serving to raise the dust. The work was carried on thus by percussion, or without torsary or screw movement. The variety of tools shown by Messrs. Degousée & Laurent is much greater. The expense of boring the Passy well was about a million francs (40,000*l.*). This well, at the date of the last account before us, was giving forth 16,300 cubic mètres of water per day of twenty-four hours, at the level of the soil, but only 6,200 at the height of 24 mètres above that level. The desired supply was found at 586 métres 50 centimètres depth. A large model, and a portion full size of the tube, or iron lining, of the Passy well, will be found in the Machinery Annex. Messrs. Mulot & Dru include in their exhibition, a block of *béton* produced by the injection of hydraulic cement through a bore-hole, into a mass of gravel or pebbles, showing a method of underpinning foundations.

In examining the cases in Class 2, attention should be given to those containing the numerous specimens of mineral waters. This part of the French Division is interesting on account of the drawings of the "Établissement Thermal de Barèges" which is in course of execution, and for the "Plans des travaux d'architecture et d'hydraulique del'Établissement Thermal" of Bagnères-de-Luchon, displayed in one of the recesses of the court, along with albums, guide-books, and dictionaries, which besides containing information useful to the English physician, will give some idea of what forms one branch of a French architect's or engineer's practice.* More however to this effect may be learned from the models in the nave, to which we have to return. Mr. François, engineer "en chef des mines" and Mr. E. Chambert, architect, managed the reconstruction of the Bagnères-de-Luchon establishment, which is now very complete.

In our last article we alluded to the division of the area of continental France into three regions of agriculture, as shown by maps. In effect, the whole of the products in the second division of Class 3 in the French department of the Exhibition, are grouped under the heads: 1, Region of wheat (not having wine of exportation, or silk); 2, Region of wheat and wine of exportation (not having silk); and, 3, Region of wheat, wine of exportation, and silk. We could wish that the instructive collection of products agricultural and alimentary, thus arranged, might be acquired by one of our museums, in addition to a similar illustration of the mineral resources of France, each in exchange

* The "Dictionnaire Général des Eaux Minérales" of Messrs. Durand-Fardel; Eugène le Bret; and J. Lefort, assisted by Mr. Jules François, contains much useful matter.

for duplicates of a similar collection which should now somewhere exist devoted to this country. If want of space be allowed to prevent the acquirement of any such collection, as we hear it has in the case of the valuable collection of minerals of the Zollverein, our administrators surely do not understand national interests, or care much about the benefits they can talk of from treaties of commerce. In the items of gain in the last ten years, in the industries comprised in Class 3, the French juries of admission set down, the progress in the fabrication of manure derived from towns and farms, and the elevation of the proportion of azote in such manure. In the Cromwell-road gallery, we find exhibited by Mr. Chodzko, a model of a timber-framed building, called by him "bâtiment de graduation," near Romainville, Paris, and erected in duplicate at the camp of Chalons-sur-Marne, which is described as for the complete disinfection of towns by the instantaneous transformation of the human *excreta*, solid and liquid, into perfect manure, and called the atmospheric system, and which seems to consist in the absorption of the liquids by faggots, shavings, or bones, on which the *excreta* have been placed. One exhibitor fills a considerable space with plans of land-drainage; and another shows, partly by specimens of the vegetable products and the animals, the condition of a district previous and subsequent to its cultivation. The juries also mention the bringing into cultivation the regions of the Landes, and the Sologne. The Landes of Gascony are remarkable for pine-trees, which are cultivated for the resin, and as a means of retaining the otherwise shifting sand. The resin-industry is due to Colbert, the Minister of Louis XIV., who in 1658, sent certain natives of Sweden to instruct the inhabitants: but the commencement of the fixation of the *dunes* was made by the engineer Bremontier in 1787. In 1801 under the Consulate, and in 1810 under the first Emperor, laws were enacted with the view of extending the system to the whole coast of the Landes. The work has been completed under the present Emperor; and great progress in the *assainissement* and cultivation of the country, has been made. Mr. Chambrelent, of Bordeaux, and Mr. Javal of Arès, near Arcachon, the latter especially, illustrate what is now the produce and industry of the Landes. As illustrative of the progress for which so much is due to the present ruler of France, the particulars which may be gathered from Mr. Javal's contribution and his separate catalogue, claim attention. The manner of collecting the resin from the growing pine is shown; and there are also specimens showing the use of the wood, injected with sulphate of copper, for shingles of roofs, water-piping, railway-sleepers, and paving. For the paving of stables, the branches or small stems are cut in the requisite short lengths, and not squared. The question whether wood is adapted for such paving, perhaps has not presented itself. The exhibition of products from the coal district of the Loire, about St. Étienne, is the most noteworthy display having value of a similar kind in the illustration of mineral-producing France. The drawing exhibited by Mr. F. Dehaynin of the machine for compressing fuel, improved by him, after the original invention by Mr. Evrard, engineer of the Chazotte mines in the district just named, deserves examination; though it were true, as announced in the French journals, that the numerous attempts to discover or develop a new motive power, have met with success in an application of force requiring scarcely any coal, the immediate importance of such machinery for compression and utilization of small fuel, would be much lessened.

The miner's safety-lamps of Mr. Dubrulle, of Lille, which cannot be opened without extinguishing the light, may be compared with those in the Eastern Annex. Men engaged in mining, in France, require to be protected by curious devices, as in England. Mr. Dubrulle says his lamp gives double the light of the Davy lamp; and that it will continue burning for sixteen hours, twelve hours of that time without the necessity of snuffing.

The French way of stacking wine is not undeserving the attention of architects. In place of stone shelves built in brick walls, and saw-dust, a light iron rack or cage holds the bottles, which rest on rods bent in this form ~~~~~~~~~~~~~~~~; and the bottles are thus arranged with the least possible loss of space. To these "*porte-bouteilles en fer*" may be added, a light gate; and the whole stack of bottles can thus be placed under lock and key, and kept in any part of the house that may be best suited for the wine. In Class 10, British Division, there is a wooden rack or cage shown, similarly to be used in substitution for stone shelves and sawdust. Messrs. Barbou are the French exhibitors.

QUEEN ELEANOR'S CROSS AT NORTHAMPTON.

At the meeting of the British Archæological Association (elsewhere referred to), the Rev. C. H. Hartshorne, when the Association went to Northampton, read the following paper on the Cross there:—

In offering to the notice of the Archæological Association a few remarks on the cross erected to the memory of Queen Eleanor, I fear I can bring forward but very little that is already unknown to them. But it may sometimes happen that a few observations uttered on the spot, recently brought together, may have the advantage of recalling what has slipped from the memory. I cannot assume much beyond doing this at the present moment. It is the usual practice with myself and others, who attempt to explain architectural monuments, to view them, in the first instance, through the medium of those historical documents which remain, such as records and chronicles, and then to apply these materials to the objects themselves. With respect to the remarkable one we are shortly about to visit, there have fortunately been preserved some Expense Rolls, which give us nearly all the information that can be desired. These were printed by Mr. Botfield, in an extremely interesting volume, for the Roxburghe Club, in 1841. As, however, the volume was limited to private distribution, it is of such difficulty of access that I must necessarily use it more freely than one in general circulation. And here, again, I may probably repeat observations I have myself made on Queen Eleanor's Cross in the Historical Memorials of Northampton. But a repetition of this kind is unavoidable, since it is impossible to obtain fresh facts on every occasion. We must, therefore, be content, by means of the increasing knowledge we have of Mediæval architecture, to apply more closely the extracts I shall bring forward; and in that respect, more particularly as we are on the spot, a little may, I think, be added to the general history of this truly beautiful work of antiquity.

During the reign of Henry III. the English possessions in Gascony were much disturbed, and he found it necessary to support himself both against Simon de Montfort, who had treacherously given up some of the principal fortresses; and also against Gaston de Bearn, the chief person who opposed him. This prince had indeed gone to implore the assistance of Alphonso, King of Castile. The royal debts were heavy: there were difficulties in raising supplies for a war; and with the prospect of the King of Castile also being in arms against the English, Henry thought it would be more prudent to attempt negotiation with him, to propose a league, and to secure his friendship by the marriage of Prince Edward, his eldest son, with Eleanor, the half-sister of the King of Castile. He accordingly sent ambassadors to the Spanish Court to request her in marriage for his son. He had already settled upon Edward the sovereignty of Guienne. Alphonso complied with this request, on condition that the prince should be sent into Spain to complete it. To this Henry, after some hesitation, assented; and in 1254, Edward proceeded to Burgos, where he was graciously received by Alphonso, who knighted him, and celebrated the marriage with great pomp. The Prince and his bride returned to Bordeaux, bringing with them a charter, bearing a golden seal, by which the Spanish sovereign relinquished, in favour of them and their heirs, all claims upon the province of Guienne. The English did not regard this alliance with favour. They said the king knew the habits and religion of the Spaniards, who were the very refuse of mankind; hideous in their persons, contemptible in their dress, and detestable in their manners. According to the statements of Matthew Paris, it was a most unpopular match, though there can be no doubt it was a source of the greatest domestic happiness to the prince.

Henry left Guienne in 1254: the prince and his wife remained till the following year. The apprehensions of the English with regard to this marriage were shortly verified. For soon after, Eleanor's brother and a Spanish nobleman came over as ambassadors, as it was currently supposed, under the expectation of receiving valuable presents from the king. It does not, however, appear that they were personally any great gainers by their mission.

Eleanor landed at Dover in October (39 Hen. III.) and on the 17th reached London, where she was welcomed by Henry with much kindness. He presented her with a silver alms dish, besides pieces of arras and gold cloth, the latter being sent to her for her arrival at Dover. These, with golden perenails and brooches, were intended for the princess to present at the shrines of St. Thomas at Canterbury and St. Edward at Westminster, on her way to the metropolis. The preparations that had been made for her reception were very unpopular with the citizens, who, as the chronicler says, were deeply grieved on a careful consideration of the pleasure manifested by the king at the presence of any foreigners.

From the year 1256 to the time when Eleanor accompanied Prince Edward to the Holy Land, but little is known of her. She probably resided at Guildford, or one of the royal castles;—most likely at Guildford; as apartments were ordered to be constructed here for her use in 1268. In 1271 she sailed with her husband for the Holy Land. It is almost superfluous to mention the affectionate care she evinced over her husband whilst he was occupied in this great crusade;—for the story of her endeavour to extract the poison from the wound he had received from an assassin is too well known to require repetition. It may, however, be stated, as this circumstance has been disputed on slight grounds, that its truth seemed fully established by the narrative of Wikes and Heminford, two contemporary historians. It was in consequence of the crusade preached at Northampton by Ottoboni, in 1268, that Edward took up the cross and passed over to the Holy Land with 104 knights, besides 18 nobles, who assumed it from the legate at the same time.

Edward returned to England on August 1st, 1274, and a fortnight afterwards was crowned in Westminster. In 1286 the affairs of Guienne required his presence. He remained absent three years, two months, and fifteen days.

The chronicle of Lanercost states that, whilst he was abroad on this occasion, he and his queen sitting on the bedside together and conversing, they narrowly escaped being killed by lightning. The electric fluid, passing through a window, struck two females behind them, and caused their death.

We hear very little of Queen Eleanor from this time until her death, a circumstance that shows how entirely she devoted herself to her husband and her domestic duties. No doubt she accompanied him in his various movements during the protracted wars with the Welsh and the Scotch. Edward arrived in England in August, 1289. In the same month in 1290 we find him in Northamptonshire. I will not trace from the itinerary of his reign that I have drawn up his residence day by day at Silverstone, Blisworth, Yardley, Northampton, Geddington, and Rockingham; I will merely state that he was at Northampton, no doubt resident in the Castle, From August 17th to August 29th, when he passed northwards to King's Clipstone, in Nottinghamshire. On the 20th of November we find him at Hardby, where he remained until the 28th, on the evening of which day Queen Eleanor died in the house of Richard de Weston.

The queen died of a lingering fever. The latest date on which we find any mention of the king and queen being together is when they were here in the month of August, on which occasion a messenger was paid for carrying their joint letters to Clare, Earl of Gloucester. On the 28th of October there is a payment of one mark to Henry Montpellier, for syrup and other medicines, purchased at Lincoln, for the queen's use. During her illness she was attended by her household physician, Master Leopard, to whom she bequeathed a legacy of twenty marks. For three days after her decease no public business was transacted. Her body was immediately opened and embalmed. I well remember reading in her wardrobe account, sold a few years ago in London, the entries relating to this process;—the cost of the myrrh and frankincense; and, what struck me as more remarkable, a charge for barley for stuffing the body. The viscera were deposited in the cathedral at Lincoln. Her heart was conveyed, by her own desire, for sacred interment in the church of the Blackfriars, in London. The Expense Rolls of the executors give full particulars of the cost of executing the monuments erected at each of these places.

The king himself was at Lincoln on the 2nd and 3rd of December; at Northampton on the 9th; at St. Alban's on the 14th; at Lincoln on the following day. The account left us by the annalist of Dunstable of the circumstances attending the arrival of the funeral train at this monastery represents generally what occurred at every place

where the funeral procession halted. After noticing the death of the queen, he says, her body passed through our town, and rested one night. Two precious cloths, bandekyns, were given unto us. Of wax we had 80lb. and more; and when the body of the said queen was departing from Dunstable, the bier rested in the centre of the market-place until the king's chancellor and the great men then and there present had marked a fitting place where they might afterwards erect a cross of wonderful size, our prior being present and sprinkling holy water.

The queen was buried with great magnificence at the feet of her husband's father, in Westminster Abbey, on the 17th of December; and on the 12th her heart was deposited in the church of the Black Friars, where a chapel was afterwards built for its reception. The king remained at Westminster for a week afterwards, and then went to Ashridge, where he remained in solitary seclusion for a month.

According to the usage of the time, splendid and perpetual commemorations of her death were enjoined in several places. Her anniversary was celebrated also at Peterborough and other abbeys with great liberality.

It has been stated by Walsingham that crosses were erected at the spots where the body rested on its way from Hardby to London. Thus we have mention made in the Expense Rolls of a cross at Lincoln, at Northampton, Stony Stratford, Woburn, Dunstable, and St. Alban's, all of them the work of John de Bello. These were all erected between 1291 and 1294. As the entries of payment for these works mingle them together, it is difficult to ascertain what was the cost of any one; but, proceeding by way of equal distribution, John de Bello would receive 134*l.* for the cross at Northampton, exclusive of the payment for statues, which were the work of William de Ireland, who received five marks for each of them. Robert, the son of Henry, a burgess of Northampton, received 40*l.* and sixty marks for laying down a causeway from Northampton to the cross, as it is said, *pro anima reginæ*, the construction of such a work being deemed an act of devotion. There are also payments of 25*l.* and seven marks to Robert de Corfe and to William de Ireland for a vinga, a head, and ring (*pro virgis, capitibus et annulis*)—architectural terms which involve some difficulty in explanation.

The exquisite representations of the queen were sculptured in London by William de Ireland, "imaginator," or the sculptor. William de Barrack, mason, received 73*s.* 4*d.* for their carriage and that of the head and lance of the cross, from London.

Doubts have often been raised as to the manner in which the cross was terminated. But an entry on the accounts leads me to suppose it was finished by a figure, most likely that of the Virgin, as William de Ireland was paid 6*l.* 3*s.* 4*d.* on one occasion for making five images for the cross at Northampton. Therefore, it is evident that a figure of some kind was imposed above the four of the queen now remaining. A desire has been often expressed to see the summit completed; but as long as it is highly uncertain what was the original termination, it would be injudicious to attempt what must necessarily be a fanciful and unsanctioned restoration.

Lincoln Cross was built by Richard of Stowe (*cementarius*); Northampton, Stony Stratford, Woburn, Dunstable, and St. Alban's, by John de Bello; Waltham, by Roger de Crundale and Dymenge de Leger; Cheap, by Michael de Canterbury, who died before it was finished by Roger de Crundale, joint builder of Waltham Cross. The decorative parts of some of these monuments were worked in London.

In conclusion, it may be desirable to make a few remarks on the effigies of Queen Eleanor herself, that are so graceful in their draperies, and so replete with dignity and classical beauty. Flaxman said that the statues of Henry III. and Eleanor in Westminster Abbey partook of the character and grace particularly cultivated in the school of Pisano; and it is not unlikely that these statues may have been done by some of his numerous scholars. The Executorial Rolls printed by Mr. Botfield bear out this conjecture, as they state that the designer of the effigies of Eleanor at Westminster and Lincoln was William Torel, a goldsmith. Her statue was modelled in wax, and there is an entry for bringing 726 lb. from the house of Torel. This enables us to account for the resemblance that exists between the queen's effigy in Westminster Abbey and the countenances as exhibited in the crosses of Northampton and Geddington.

The features of all these figures are precisely the same. They bear indisputable marks of coming from the same chisel. This remarkable resemblance was evidently the result of all of them being sculptured by the same artist.

Three of these crosses still remain: those at Northampton and Waltham are included in the expense rolls: the one at Geddington is not mentioned. This is still in excellent preservation. As a work of art, however, it is scarcely equal to the two others, though in itself admirable in its design and workmanship. The diapered pattern running up the shaft is singularly elegant. The figures of Eleanor, at Geddington, as has been already mentioned, partake of the same elegance as those at Northampton; being clearly the work of the sculptor who was employed elsewhere. We must accept all of these as faithful copies of the copper-gilt effigy at Westminster. The placid expression that is stamped on the queen's countenance could have been no imaginary creation; and, in looking upon it, we may believe we have before us as faithful a resemblance of this illustrious lady as it was possible to produce at the period. These monuments must always be regarded as the most beautiful specimens of British sculpture we possess. For refinement and serenity, for the feeling of majesty and repose they exhibit, they can scarcely be surpassed. Unquestionably they are the faithful reflexion of Eleanor herself.

It would be difficult to conceive more suitable memorials than these to testify the feeling of regret that has pervaded all England under the recent loss it has sustained in the death of its most illustrious Prince. Those who come after us would gaze upon them as we do, but with still higher associations, and deeper sentiments of admiration. Because, whilst the crosses of Eleanor call merely to remembrance her domestic graces, a monument to Prince Albert would be a beacon to posterity, to show how cherished has he ever been in his adopted country, how sincerely beloved for his spotless character and his public virtues.

BRITISH ARCHITECTS.

NEW MATERIALS FOR THEIR LIVES.

Sir Christopher Wren.—That Wiltshire worthy—for so old Fuller would, without fail, have called him—was born at Knoyle, in Wiltshire, on the 20th of October, 1631.* Beyond the birth of Wren, that Anno Domini 1631 was an "*Annus Mirabilis*" in English biography. Dr. Donne, the satirist, died that year; Dryden, the satirist, was born that year: two men whose lasting influence on English literature is still felt. Nor are these the only remarkable coincident events in the life of Wren: in the year, month, and on the very day on which Sir Peter Lely died, Sir Christopher Wren was elected President of the Royal Society.

Little thought the mother of Wren that her new-born infant (like Sir Isaac Newton, at his birth small enough to be put into a tea-pot) was to rebuild the great city of London, and die in his ninety-first year. Our great architect, ere he descended in "sorrow to the grave,"† was to live through many eventful reigns. He was in his eighteenth year when King Charles I. was beheaded before Inigo's fine palace at Whitehall; he was a man when Inigo died, and might have shaken hands with his illustrious master in architecture. He survived the state funeral of Cromwell—the Protectorate of Richard—the Restoration of Charles II.—the abdication of James II.—the Revolution of 1688—the deaths of King William and Queen Mary—the death and exile of James—the death of Anne, childless, after many children; saw the accession of the House of Hanover, and lived nine years into the reign of King George I.! O for a Boswell to have sat by his side! Wren, "qui vixit annos ultra nonaginta," as his tomb records, retained his fine intellects to the last, and had rich mental resources of his own to support him, till death ended all, and "subtus conditur hujus Ecclesiæ et Urbis" was placed upon his grave.

The twin rival Universities of England produced at the same time two very great men; so great, indeed, that capable judges, clothed in judicial fur, hesitate to name the greater of the two: Cambridge educated Sir Isaac Newton—Oxford educated Sir Christopher Wren. That Cambridge has been more alive to the greatness of Newton than Oxford has been to the greatness of Wren, the Trinity statue, by Roubiliac, is a well-known proof. Cambridge possesses a statue of Newton—Oxford has been content with a bust of Wren; and by the same sculptor. Both were Presidents of the Royal Society: will the Royal Society decide and adjudge, not their medal alone, but the apple, between them?

That the names of the schoolmasters of great men deserve to be mentioned in the lives of their illustrious scholars, we are told emphatically by a schoolmaster "at Edial," named Samuel Johnson, who had Garrick for his pupil. Wren's master was his future brother-in-law, the husband of his sister, Susannah Wren; his name was William Holder. A few words about him (not to be found—where it should be found—in the Life of Wren) will not be out of place

Holder was in holy orders, and held the living of Bletchington, in Oxfordshire, where his hospitality and learning, "mixed with great courtesie easily conciliated," we are told, "the love of all his neighbours to him." Hither—to Bletchington—came the Dean of Windsor, with his son Christopher; and here Holder was of service in directing and assisting the studies of his illustrious brother-in-law. The father of Wren, of St. John's, in Oxford, died at Bletchington, and is buried there. We should know more of the Dean—just as the twig is bent the tree is inclined;—hereafter I may have something to say about him, and of the great man to whom he was chaplain—the pious and witty Lancelot Andrews, Bishop of Winchester.

Two facts about Holder will be here in place: he survived his wife, and dying in 1697, aged 95, was buried beneath the dome of Wren's unfinished St. Paul's. Susannah Holder died on a memorable day in English history—Saturday, the 30th of June, 1688, the day of the acquittal of the Seven Bishops.

From "the parsonage-house at Bletchington," his "home and retiring-place," Wren was removed to Wadham College, in Oxford, where he obtained the friendship of the Warden—no less a person than John Wilkins, Oliver Cromwell's brother-in-law, King Charles II.'s Bishop of Chester. Wilkins was a ripe mathematician. A better warden for young Wren there could not have been. His influence was all-important. The story is curious. That illustrious chemist and fiddler, statesman and buffoon, the second and last Duke of Buckingham of the Villiers family (who would have excelled in anything he turned his attention to), "affected the mathematics," but in no mood of affectation, induced King Charles II. (mathematically inclined himself) to make Wilkins Bishop of Chester, and Wren surveyor of the works to the Crown. This fact of good service to Wren, to science, and to all time, has been made known to us by no less a person than Pepys, whose means of information were ample and reliable.

The Great Plague of London (1665) drove Wren abroad; and the Great Fire of London (1666) hurried him home again. That he was not idling, with "thoughts close and looks loose" (Wotton's advice to Milton on his travels), we need not be told. Of what he saw and thought, a few memoranda have recently reached us, through the diary of a son of Sir Thomas Browne (Religio Medici), who saw him at Paris, busy comparing and copying materials to affect hereafter, not his style of architecture only, but the architecture of the whole island. The Louis Quatorze style at Paris, caught and imported by Wren, may be traced from Wren to Vanbrugh; from Hawksmoor to Gibbs; from Gibbs to Lord Burlington; from Lord Burlington to Sir William Chambers; and from Chambers to Sir John Soane and Mr. Regent Street Nash. Would Inigo's correct taste have been alike corrupted?

Wren had two wives: Faith Coghill, daughter of Sir John Coghill, of Bletchington, in Oxfordshire, was the former; Jane Fitzwilliam, daughter of William, Lord Fitzwilliam, Baron of Lifford, in Ireland, the latter. When and where his first marriage took place no one has told us. Doubtless at Bletchington, and in the church of Dr. Holder. What does the marriage register say? Did Dr. Holder marry them? The *Builder* is sure to have many readers in Oxfordshire: will some "constant reader and admirer" search the registers of Bletchington, and enrich our materials for a new, full, and illustrated Life of Wren?

Touching his second marriage, we can find in print, but not in any life, memoir, notice, or account of Wren, when, where, and by whom Sir Christopher was married. We have no Shakespeare and Anne Hathaway difficulty, or Vandyck and Mary Ruthven difficulty, with Wren's second marriage. It was a Chapel Royal affair, and within St. James's Palace. The service was performed by the sub-dean of the chapel, on the 24th day of February, 1676. The sub-dean who married them was the bridegroom's brother-in-law, Dr. William

* See, as recently known *confirmatory* proofs, Aubrey's "Wiltshire," by Britton, p. 80; and "Catalogue of Ashmolean MSS.," by Black, p. 80.

† See Pope's "Dunciad."

Holder. This "date-mark" (is there such a word?) I find in Mr. Burn's "Parish Registers," p. 121.

In the Life I wrote of Inigo Jones I had occasion to correct and set right the nature and amount of the emoluments he received as Surveyor. A payment to Wren for the like office is new to our materials for his life. Here it is:—

"To Sir Christopher Wren, Knt., Surveyor of the Works, for his Entertainment at Eight Shillings per diem, for recompence of his availes at Eighty Pounds per Annum, and for an increase of his entertainment at Five Shillings and Two Pence per diem, which said Allowances were granted to Sir John Denham, Knight of the Bath, late Surveyor of the Works, by the Orders and Instructions of the 4th February 1662, during his life only, and continued to the present Surveyor by His Majesty's warrant under His Royal Sign Manual and Privy Signet dated 27th September 1675."

Contrast, if you please, Mr. Editor, Sir Christopher Wren's remuneration with the sums paid to Sir William Chambers for Somerset House, to Sir John Soane for the Bank, to Sir Jeffery Wyattville for Windsor, nor overlook Sir Charles Barry's much canvassed and grumbled at percentage for the new Houses of Parliament.*

That Wren, in his old age and on the accession of the House of Hanover, was set aside as Surveyor to the Crown and in favour of Benson ("to oblige Benson"), is a well-known fact, made additionally touching by the pathetic and sarcastic turn given to it by the poet of Twickenham and "all time." The date of deprivation (omitted by his biographers) was the 14th of April, 1718. Another fact, first *published* in 1837, that Vanbrugh might have had Wren's place, and refused it "out of tenderness to Sir Christopher Wren," as Van himself informs a friend, is not so well known as it deserves to be. Shadwell had no such generous feeling towards Dryden, and was rewarded accordingly. This is characteristic, nay more, confirmatory of every known act in the life of "a man of wit and of honour," for such was Vanbrugh, as the twin satirists (Pope and Swift) publicly in print freely acknowledge him to have been.

An "estimate" framed by Wren—the only one I have ever seen of his—will be read with interest, not by architect, antiquary, and advertiser alone, but by all who admire the noble building it relates to:—

"*Estimate of finishing part of Hampton Court.*

To the King's Most Excellent M^tie.

May it please y^r M^tie your M^tie having been graciously pleased to signifie y^r Comandes to me, that I should give an Estimate of the expense of fitting the Inside of the Roomes of State at Hampton Court, from the Entrance out of the Portico to the roomes already finished aboue staires, containing the Great Staires, the Guard Chamber, the Presence Chamber, Privy Chamber, Drawingroome, Anteroome, Great bedchamber, Lobby and Gallery for the pictures; in pursuance of this comand I humbly represent—That although a perfect estimate of Finishing the Inside of any house is as uncertain as the charge of furnishing, and is more or lesse according to the intention of the Owner; yet upon supposition that your M^tie would finish as decently as the greatness of the Roomes seemes to require, and having consulted your M^tie's Officers of the Workes what is requisit to be don & the charge of Each Roome, I have represented the Worke of Each Roome, and the totall Expense as followeth:—

1. The great staires to be made with steps of the Irish stone, such as are at Kensington, but longer and easier, with iron Rayles of good worke; the floor and harthplace to be well paved with marble; the walls to be wanscoted 20 foot high with fine dorecases.

2. The Guard-chamber to be fitted for Armes as at Windsor, and other Houses.

3. The Presence-chamber to be fitted for Hangings, with Marbles in the Chimney and Stooles of the Windowes and proper Ornaments.

4. The Privy-Chamber in like manner.

5. The Drawing-Roome with some variety as having the best Furniture.

6. The Anteroome well finished.

7. The Great Bed-Chamber to be perfected.

8. The Gallery to be fitted for the Cartoones with Wanscote on the Windowe-side and below the Pictures, and between them, and with Wanscote behind them to preserve them from the Walls, and with a Marble Chimney and Marble Soyles in the Windowes, and other things proper to complete the same.

9. The Lobby between the Presence and the Gallery to be ceeled and finished.

10. The boardes of all these Roomes (being allready provided very good and drie) are to be laid after the best manner, without Nayles, and with battens under the joyntes.

The Expense of this Work thus performed by good Artists will amount to the sum of 6,800*l.*

All the insides of these Rooms have been long since designed, and shall be presented to your M^tie for your approbation and correction, and accordingly the expense may prove more or lesse, but I am humbly of opinion the Worke may be decently performed to your M^tie's satisfaction for the sume above mentioned.

It may be farther considered, that other things will be required for the accommodation of those who are to be neer your Royall person, and that the Courtes must be paved, more Sewers made, and the Water brought to more places; and other things necessary for your M^tie's service; which may be estimated as they are directed: all w^ch is most submitted. CHR. WREN.

April 28, 1699."

The careful reader will observe that there is in the estimate no E.E., or errors excepted; nor will he omit observing how the "may be" of the concluding paragraph may be said to foreshadow, not an amended, but a supplementary estimate.

The admirer of Wren—and what man with an eye in his head is not an admirer?—will turn time to good account by studying, with reverential care, the collections of drawings, elevations, &c., made by our great architect, and preserved to us through the zeal and admiration of Sir William Blackstone ("Commentary" Blackstone) and Sir John Soane. The former collection, by far the more valuable of the two, is to be seen in the library at All Souls' College, in Oxford. The latter is in the Soane Museum. They are the pick and sweepings from young Christopher Wren's sale of what must have been a noble accumulation of great fulfilled and unfulfilled designs. It is with architects as with poets, if we may trust Waller:

> "Poets lose half the praise they should have got,
> Could it be known what they discreetly blot."

The All Souls' Collection forms three atlas-sized volumes, and contains many first thoughts and finished combinations for St. Paul's, for Bow and St. Antholin's, for the Monument, and Whitehall. No. 39 of vol. i. is a very fine west front to St. Paul's; No. 76 of vol. ii. is Bow, complete and fine; No. 106 of vol. iii. is a river front to Whitehall, with Inigo's Banqueting House worked in—extremely grand. The whole series should be framed and glazed, exhibited, and finally engraved. What say you, Mr. Editor?

We have few personal memorials immediately connected with our great men. A reflecting telescope made by Sir Isaac Newton's own hands may be seen in the Museum of the Royal Society, and the compasses used by Wren seen in the Soane Museum. To touch memorials so full of associations requires courage and even ignorance. "With reverence look," as Dryden looked on Kneller's present to him of Shakspeare's portrait, "proud to be less but of his godlike race." We have no such familiar fireside memorials of Shakspeare or Milton, of Bacon or Clarendon. Where is Shakspeare's second-best bed? Where is the "Sic sedebat" chair of Lord Chancellor Bacon? The manuscript of young Wren's "Parentalia" is in the library of the Royal Society; the MS. of the "Principia" in the same resting-place. The MS. of Milton's "Lycidas" is at Cambridge. But where are the original MSS. of any one line of any of "Mr. William Shakspeare's comedies, tragedies, histories," &c., or any scraps of his handwriting, his name excepted, other than the farewell words of his last *will*, "*By me*, William Shakspeare"? PETER CUNNINGHAM.

* Wren himself told Aubrey that his predecessor, Denham, in his short surveyorship (seven years, at the utmost), got seven thousand pounds by his office. ("Aubrey's Lives," ii. 319.) One thousand a year in 1662 was equal to how much in 1862? Three thousand?

THE SANITARY STATE OF ISLINGTON.

THE Medical Officer of Health for the parish of St. Mary, Islington (Dr. E. Ballard), has made his sixth annual report, an elaborate and instructive one, to the Vestry. This report has been printed, and deserves consideration.

In the outset Dr. Ballard states that by means of information obtained from the Registrar-General, he has been enabled to map out his parish into thirty-five separate districts, the sanitary state of each of which he can thus to a certain extent observe; and he not only makes good use of the information thus afforded him, but has prepared a map of these districts with various statistical particulars marked on it; and the map has been printed along with his report. This map indicates a very important step towards a thorough knowledge of the actual and local nests of disease and the probable causes of increased or diminished mortality. The report also shows an increasing knowledge of the amount of sickness as well as of death from disease in the several localities. This constitutes another important step in advance, for which the public are indebted to Mr. Edmonds.

"Two thousand nine hundred and forty-one persons (exclusive of strangers in hospitals) died in the parish between January 1st and December 31st, inclusive. Assuming our rate of increase last year to be the same as during the ten previous years, our population in the middle of the year would be 157,130. The death-rate of the year then was 200 in each 10,000 persons. That of London at large is stated by the Registrar-General to have been 232.

One thousand four hundred and five of the deaths were of children under five years of age: they constituted thus 47·7 per cent. of the whole number of deaths. This is a somewhat smaller proportion than in the previous year, but the full value of the number cannot be estimated until the Census tables are published, which will contain the population under five years of age.

From these numbers we are now in a position to calculate approximatively the amount of sickness prevalent in Islington during the year by the application of the law recently laid down by Mr. Edmonds. The law is, that 'the numbers *constantly* suffering from *acute sickness* at any year of age (from fifteen years upwards) will amount to double the number of yearly deaths, and the number of *invalids or permanent sufferers* from *past* sickness will be equal to the number of annual deaths.' Consequently, during the past year, in Islington, there were on an average *constantly on the sick list*, unable to work at their occupations, unable to gain their living, unproductive, thrown upon the resources of their former providence, upon the kindness and means of their friends, or compelled to seek relief from the poor-rates, as many as 4,119 adult persons, of whom one-third, or 1,373, were persons permanently disabled, who will never be able to support themselves again out of earnings of their mental or bodily labour. What proportion of our adult population this number forms will appear at some future time. Mr. Edmonds's law does not apply to children; but it is to be observed that much of the permanent disability of adult age, and the liability to attacks of sickness which interfere with the working power of the adult, is a legacy of infantile disease.

Here, then, is the significance of my mortality table. It means something more than that our population has been reduced by so many: it has a political and social meaning, which is capable of a *money valuation*. Every death of an adult is a *money* loss: every sickness is a *reduction of wealth*; represents an additional *burthen upon a family*, often ill fitted to bear it; or an imperative *demand upon the purse of the ratepayer*. Every one of the persons referred to is, on the estimate of Dr. Farr, disabled for an average period of thirty-six days, or loses one-tenth part of his yearly earnings in consequence of sickness. Adult sickness represents a ten-per-cent. income-tax,—a tax, too, which does nobody any good."

The death-rate for the whole parish being 20·0 per 1,000, that of the several sanitary districts set out varied from 8·5 in Hornsey Rise district to 33·5 in Balls Pond district. Assuming, with Dr. Farr, a mortality of 15 per 1,000 as a standard mortality for a healthy district, there were ten out of the thirty-five districts in which it was lower than this; viz., Hornsey Rise, Hornsey-road, Tufnell, Market, Highbury-hill, Belle Isle, Rydon, Highgate-hill, Archway, and Park-street districts.

Referring to a table of the districts, dividing them into three classes, the third of which comprises chiefly the poorer localities, the reporter says:—

"In this *third* group there were probably to be found, at any moment during the last year, 1,109 families in which one of their few working adult members was unable, on account of sickness, to assist in supporting the family which depended upon them for subsistence; and of these, one-third were persons not only unable to work, but who never will be able to work again. And, considering the improvident habits of this class of people, the burthen of making up the deficiency from this cause has fallen mainly, directly or indirectly, upon the poor-rates. If we only calculated the earnings of such people at a shilling a day (and twice that amount would be nearer the truth), the amount which it has been necessary to make up, either from this source or from private or public charity during the year, could not have been less than 17,355*l.* To this may be added, at least, half as much again, for those parts of the districts of the first and second groups which shelter a similar population. And, even then, we shall have arrived at an amount of loss which must be regarded as far below the truth. I do not say that all this sickness and all this public loss of money is due to causes over which a vestry has control, but some of it is."

On the subject of infant mortality, he says:—

"The children who died in the parish under five years of age were 1,405. Of these, 748 had not reached the termination of the first year of their existence, I do not know, as I have at present no means of calculating, what proportion these 1,405 bear to the number of children within the age of five years living in the parish; but it is apparent that, as there were 35,230 families in the parish on the 8th of April, one in every twenty-five of these lost a child by death during the year. Again, as there were 5,355 children under one year of age, born in the parish, and alive at some time during the year, it may be estimated that about every seventh of them died before their first year of life was out. If you consult the table on the map, you will see how differently this mortality was distributed throughout the several districts. In some, it was only 1·8, 2·9, 3·6, 3·7, in the 1,000 who died thus young. In others, the number varied from 10 to 18 in the 1,000. Is it credible that, in the extremes of the two classes, there is a difference such as exist between 1 and 10, or even 1 and 5? Probably, before the period of my next report, I shall have some definite information on this

point,—one on which it is of the highest importance I should be informed. In the mean time, I have instituted a limited inquiry as to the proportion of children under five years in several streets occupied by the labouring classes; and I find them to amount to about 20 per cent. of the entire population of those streets; that is, out of a population of 4,759, there were 981 children under five years of age. At the census of 1851, the children under five years of age formed about 12 per cent. of the entire population of the parish. In these same streets, 83 children died during the year under five years of age, being about 17 per 1,000 of the whole population, and 84 per 1,000 of the population under five years. In some of the streets entering into this enumeration, the mortality was, last year, much higher than I have stated. Thus, in Nelson-place, Nelson-buildings, and Nelson-cottages, City-road, it was at the rate of 187* per 1,000; in Halton-place, 161 per 1,000; in Newhall-street, 140 per 1,000; in Albany-place, Queen's-road, 173 per 1,000; in Bemerton-street, 106 per 1,000; in Clayton-street, 112 per 1,000, of those living under five years of age."

Referring to a table showing the proportion of families to each death of a child under five years of age in the several sanitary districts and groups of districts, Dr. Ballard says:—

"This table is to some extent trustworthy, as indicating differences of sanitary condition in the several districts, or, at any rate, among the districts in the same group. Thus, we have at the two extremes, Hornsey Rise presenting us with only one infant death in every 94·6 families, and the Irish courts showing one in every 12·7 families, and Balls Pond in every 12·9 families. In the first group we have the infant deaths ranging from one death in 94·6 to one in 25 families, with a mean of one in every 36·3 families; in the second group, from one in every 55·6 to one in every 17·4 families, with a mean of one in every 29·2 families; and in the third group, ranging from one in every 27·8 to one in every 12·7 families, with a mean of one in every 19·3 families; and it is to be recollected that it is *home* conditions which, above all, regulate infant health. Where I find a high infant mortality, it is to that street or district my principal attention is always directed for the discovery and removal of local conditions of ill health, the abatement of overcrowding, dirt, and the occupation of kitchens as sleeping-rooms.

And in respect to kitchen occupation, I have a word to say about two of the districts in the first group. It will be observed that Shepherdess and Mildmay districts stand very high in their infant mortality, and last year they stood nearer in character to some of the better districts in the third group than to some of the worst in their own. I do not wish it to be understood that the practice I am about to mention is the main cause of this; but it is well known that most of the new houses in these districts are constructed with what are termed breakfast parlours in the basement; otherwise, what would be front kitchens are metamorphosed into sitting-rooms, in which the younger members of the family spend much of the day. This practice is reprehensible. Such rooms are usually imperfectly ventilated: if there be any dampness in the house, it is there that it will be found; and if there are any noxious exhalations from the drains or foundation of the house it is there that they will be most concentrated. When visiting sick persons in houses thus arranged, and also when making official visits to them, I have constantly taken the opportunity of expressing this opinion in private by way of warning: I now state it publicly. From what I have myself seen of the use of such rooms, I am satisfied that the health of the children would be better were it abandoned."

On the subject of local diseases, the reporter wisely remarks that "Among adults the natural changes of advancing age are too often accelerated by intemperance and the wear and tear of ceaseless toil and anxiety. Both with a view to lessen the mortality from these groups of maladies, as well as from consumption, it is the duty of a sanitary officer, by the expression of his opinion, to encourage and commend all efforts for the abridgment of the hours of work; especially of desk, of office, and of shop-work, any rational and practicable scheme that may be proposed for diminishing Sunday labour, for promoting healthy recreations, for providing public parks, and for facilitating access to the quiet and soothing influence of the country. For our own parish, I regret yearly the slow progress of the scheme for providing such an invaluable health-resort for our population as the Finsbury Park promised to become."

SALVIATI'S MOSAICS AND CHALCEDONY-AGATE.

On more than one occasion we have spoken of the gold and coloured mosaics manufactured by Lorenzo Radi for Dr. Salviati, and of the establishment for their production founded and most energetically advocated by the latter in Venice. Some further particulars, however, at this time, when fresh means of decoration are being looked for, will probably interest many of our readers; and we advise them, with reference to the subject, to look to the works sent by Dr. Salviati to the International Exhibition. In 1861, a commission appointed by the Imperial and Royal Academy of the Fine Arts, in Venice, reported,—

"That the gold enamels for mosaic work, submitted to the judgment of the commission, were superior, from the brilliancy and transparency of the crystalline or vitreous layer, not only to those previously manufactured by Radi, but even to some of the ancient ones; that the crystalline portion had reached the highest degree of perfection, being much finer and more delicate than that formerly made by Radi, and perhaps even than that in the ancient mosaics, by exhibiting a compactness and an adhesiveness to the underlying layer, so as to secure the greatest possible durability; that this last quality resulted, likewise, from the nicety and exactness of the cutting, from the sharpness of the angles, and from the fineness of the edges, just because crystals, less compact and adhesive, would have cracked at their edges, or would have become detached from the gold leaf at the moment of cutting—though the instruments employed for that purpose by Radi appear to be perfect.

That the commission consider the pieces, now supplied by Radi, to be superior to those previously made by him, both on account of the lustre and continuity of the gold leaf, and from their presenting neither scratches nor swellings."

What they found of new on their visit was, in the first place, the mode of cutting the enamels for mosaics; and, in the second place, the manufacture of the chalcedony-agate. The cutting of the enamels, has reached a high degree of perfection. The gold and silver enamels are cut and reduced to every possible form, ornamental as well as geometrical, as if the materials could be worked with the greatest ease, instead of being, as they are, very hard, and most difficult to cut; and this extreme nicety in the cutting they regarded as a special characteristic of the present establishment, because, hitherto, it has been obtained by no other craftsman, nor in any other place.

Hence the idea of Dr. Salviati to extend the application of gold, silver, and coloured enamels, hitherto limited to mosaics for churches and mosques, by employing them not merely for such purposes, but likewise in the decorative arts, and in the fitting-up of dwelling-houses. No one can well imagine beforehand, how large and fertile a field is opened up to these most important arts by the employment of this new species of material. The attractiveness, the vivacity of the tints, infinitely superior even to those employed in fresco painting; the transparent colour of the material; all these present new modes of ornamenting, in the most artistic manner, any building. The specimens of pavements, of wall and roof decorations, of basements, of borders for doors, exhibited, give a good idea of what might beeffected by mosaics as a decorative art.

Some of our readers know, but others do not, the difference between coloured enamels and those of gold or of silver, whether as regards their nature, or the mode of manufacturing them. Coloured enamels are made of vitreous paste: paste being the term by which, in glass-making, artificial stones are familiarly known. They are formed of the same siliceous and other materials of which common glass is made; but to these materials are joined other mineral elements, which, when fused along with them in the furnace, impart to the vitreous paste its density and its colour. In this way, the greater or less degree of opaqueness, of purity, and of solidity of the enamel, the quality and beauty of its colour, and even the most varied and endless shades of the same tint, are all dependent on the quantity and quality of the mineral elements aforesaid, in union with those of common glass, and on the degree and continuance of the heat to which the whole composition is subjected in the furnace.

Gold or silver enamel, on the contrary, is the result of a very different operation. On a thick layer of glass, or of enamel—according as it is intended to render the gold enamel transparent or the reverse, or to impart to it a warm and varied colour—there is laid and attached by the action of fire a sheet of gold or silver leaf; then a coating is added, almost as thin as a hair, of the purest glass, which may be either colourless, or of any shade of colour wished for. Thus, these three layers, poured and fused together, remain perfectly united with each other, so as form a single body. Should it so happen that the fusion is completely successful, then the metal will be protected for ever against all possibility of injury, from exposure to the action of the air and of the atmosphere, from dust, from gas, from smoke, from insects, in such a way as to lose nothing of its purity and its splendour. When this most delicate upper coating of glass possesses the requisite fineness and purity, and when the entire extent of the sheet offers no inequalities of thickness, the gold or silver appears in all its natural beauty; and the glass, with which it is covered over, is scarcely discernible at all. When the reverse of this occurs—when the gold remains, so to speak, entombed between the upper and under layers, and cannot present a proper surface (and this invariably happens in the attempt to manufacture mosaics by simply placing the gold between two sheets of glass, instead of thoroughly blending the three layers by a process of fusion), the consequence is that the eye is arrested by the glass instead of by the metal, and the mosaic has the unattractive appearance of being varnished over. The like happens with coloured enamels, especially when they are used for monumental mosaics, if they are not made sufficiently opaque; that is to say, if they present to the eye the shining appearance peculiar to common glass.

With these data, it is easy to understand that the manufacture of enamels in general, and especially of those in gold and silver, is attended with very great difficulties and inconveniences.

Amongst the difficulties is the peculiar character of the material on which the artist in mosaics must work, and, consequently, to extreme liability of breaking, especially at the sides and at the corners. It is impossible, therefore, to use the ordinary instruments employed in the cutting and perforation of wood, of marble, and even of *pietre dure*. Great excellence has been attained in this cutting of the gold and silver enamels.

By means of the new process, pieces of gold enamel are obtained of a tolerably large size, and of a surface so variously curved and moulded as to be capable of receiving the most varied forms, and to be employed in almost every species of ornamentation. They are thus enabled to produce, with gold enamel in relief, frames of various sizes and patterns, for pictures or for mirrors, cornices for curtains, curtain hangers, ornamental leaves, rosettes, heads and figures of animals, fluted and spiral columns, &c., &c. This process, therefore, gives us all articles of ornamental furniture in imperishable gilding, because the gold in the same remains always covered with an inseparable glass film. It is thus applicable, in combination with coloured enamel, to the inlaying of furniture of every kind, as well as to the decoration and ornamentation, both internal and external, of houses, of public halls, or of private rooms, of theatres, of cafés, of cemeteries, of tombstones, of ornamental fountains.

We may also call attention to another invention which is a speciality of the Salviati establishment. It consists in obtaining, from the tablets of gold enamel (the gold leaf being cut in different forms and fashions), inscriptions, names, numbers, words, lines, and large alphabetic ornaments. The innumerable applications of this peculiar invention are evident at a single glance.

The manufacture of chalcedony-agate—a peculiar species of paste or composition of great beauty—is another speciality of the mosaic and enamel establishment of which we are speaking. They reproduce many varieties of the numerous family of agates; for example, jasper, onyx, sardonyx, lapislazuli, and cornelian.

In this composition, like that of the other enamels, the basis is vitreous; but it contains, in addition, a large quantity of metallic elements. It is by the difference in the number and in the proportion of these metallic elements, as well as by the difference in the period of their exposure to the action of fire, that the quantity, quality, and variety of tints are obtained.

The original invention of this composition is ascribed to Domenico Miotti, a celebrated worker in glass, in the island of Murano, in the thirteenth century.

Radi, animated by his great enthusiasm for whatever relates to the art of glass, proposed to himself the task of re-discovering the secret; and, after twenty years, succeeded in producing artificial chalcedony-agate. For so doing, he obtained a medal from the Imperial and Royal Institute of Sciences, Letters, and Fine Arts, of Venice.

The chalcedony-agate, now produced at the Salviati establishment, has attained a high degree of perfection. Not only are there formed by ordinary glass-blowing, vases and other articles mixed with patches or veins of avventurine, as in the ancient specimens, with tints and types on so large a scale, and with forms and dimensions so large, that the ancients never produced anything similar, but even more important results have been secured. They obtain, by casting or moulding, pieces or tablets of a considerable size and thickness, and of whatever form may be desired. These tablets, after having been polished, burnished, and cut, are admirably adapted to all works of mosaic, inlaying, or marqueterie.

We have referred at greater length to these mosaics, because of the praiseworthy endeavours now being made, by Mr. Cole and others, to obtain mosaic decorations for the permanent portion of the Exhibition building. The clay mosaics have an opacity and deadness which render them not wholly satisfactory; and it is worth consideration whether or not vitreous mosaics should not be used with them to give vivacity and sparkle.

* The continuance of such a death-rate as this would involve the almost entire extinction of the rising generation in the course of five years; or, in other words, there would be almost no increase of population by the births occurring there.

We view the attempt at South Kensington with the greatest possible interest, and would aid it any way we could. We hope, therefore, we shall not be misunderstood when we say that the cartoons now exhibited in two of the compartments are very unsatisfactory; and that it would be altogether a waste of money to produce them in mosaics. They are no better than paperhangings, and give pleasure to no one. Strong outlines are needed for works of this kind, without fine shading; and, above all things, there must be a strong human expression. We re-assert, that to reproduce these cartoons in mosaics would be an unfortunate waste of money. We have waited, hoping that others would have saved us from the necessity of speaking a disagreeable truth; but, as it is not so, we may not longer remain silent, and so allow judgment in favour to go by default. Fresh cartoons should be obtained.

FULHAM, KEW, AND KINGSTON BRIDGES.

Mr. Oliveira, as chairman of the select committee of Metropolitan Bridges of 1854, has published a letter on the subject of the Thames bridges, in the course of which he says:—

"Fulham Bridge, to which public attention is at present directed, was built in the year 1729, at a cost of 23,975*l.*, including 8,000*l.* paid as compensation to the owners of horse and foot ferries then existing. This capital was afterwards transferred to thirty subscribers of 1,000*l.* each; and, looking to the high tolls that have prevailed for one hundred and thirty-three years, it is fair to presume that the proprietors have received both capital and interest long since. The average revenue for the seven years from 1844 to 1850 inclusive was 3,542*l.* 19s. 9d., which, at twenty years' purchase, would give 70,859*l.* 15s., or 2,361*l.* 19s. 10d. for each share, originally computed at 1,000*l.*

It is calculated that a new light bridge might be built near the present antiquated deformity at a cost of 50,000*l.*, judging from the estimates and contracts made for the new Lambeth Bridge, designed by Mr. Barlow, now under construction, where property, most likely, has a higher value than at Fulham.

I would venture to suggest that the heavy unsightly water-pipes which form so disagreeable an object across the river, just above the present Fulham Bridge, might be incased in some ornamental ironwork, and form the lower portion of the new bridge, if there be no engineering difficulties.

Assuming the above calculations to be correct, a very low toll would suffice to pay a fair dividend; and the present dangerous, ugly structure, might be left to its fate.

Another mode of dealing with the subject presents itself,—namely, to make terms with the proprietors of the existing Fulham Bridge; giving them a proportion of the capital in the new bridge; thus saving any outlay in approaches. In this alternative the new bridge might be built half the width at a time, as in the case of Westminster, by which no interruption of the traffic would take place. * * * *

Kew Bridge is a bad case for the public. It belongs to one individual, a Mr. Robinson, who purchased it for 20,700*l.* some years ago. The gross receipts in 1843 were 2,121*l.*, and in 1853, 2,750*l.* 10s., the annual outgoings being about 210*l.* So that, if the two years of revenue given are about an average, there would be a clear minimum dividend of about ten per cent. There is no clause in the Act of Parliament to enable the Government to purchase. The inhabitants of the neighbourhood appear to desire its being thrown open, which they think would have the effect of enhancing materially the value of the adjacent property.

Kingston Bridge was built by Mr. Lapidge, the surveyor for Surrey, in 1828, the money being raised by loan from the Exchequer, amounting to 45,000*l.*, which is paid off by annual instalments; and in 1854 there remained due to the Government 31,000*l.* The average annual payment to the Government on account of the loan is 700*l.* or 800*l.*; and it was calculated by witnesses examined before my committee that the whole debt would be paid and the bridge thrown open about 1879.

It appears, by charters and other documents affecting Kingston Bridge, that, from at least the period of the reign of Queen Elizabeth until the year 1829, the said bridge was free of toll to all persons having occasion to pass over the same between the counties of Middlesex and Surrey; and the opinions of the inhabitants, by petitions and witnesses examined, were unanimously in favour of opening the bridge free; stating 'That the tolls are very vexatious in their collection, and in their obstruction of the public, and very detrimental to trade and to free communication; and instances have been adduced without number of the mode in which people put themselves to considerable inconvenience to avoid the tolls—inconvenience, probably, of ten or fifty times the amount of the actual toll, as many persons will consider it.'

The gross revenue of Kingston Bridge is about 2,500*l.* annually.

It would be judicious even, referring to the value of Crown property in that locality, for Government to remit the debt and throw the bridge open."

FOREIGN RAILWAYS.

The concession of the railways of the Island of Sardinia has been given to Mr. Semenza, of the well-known firm of Semenza, Mazzini, and Comber, silk merchants, of London.

Subsidies have been voted for experiments to be made on the invention of Signor Agudio, the object of which is to enable ordinary trains to overcome steep railway gradients.

The railway from Moscow, as far as Nijni-Novgorod, was opened to the public on the 13th inst. The journey is performed in sixteen hours.

FROM PARIS.

The new buildings of the Théâtre Français, nearly finished, have been stripped of their inclosure of planks. The façade of the Rue Saint Honoré is composed of a projecting centre portion of thirteen openings in front, flanked on either side by wings. The centre portion forms, on the ground floor, a long colonnade, of the Tuscan order, under which are the offices, vestibules, and other dependencies of a theatre. Above this runs a cornice, on consoles, serving as a base to a row of Composite pilasters: these pilasters adorn the first floor, over which is a half-story or *entresol*, and support the first entablature. Above these stand an attic story, decorated with pilasters, supporting the second entablature: it is crowned by a balustrade ornamented with vases and trophies, and encircling another story of mansards.

On the first floor the architraves of the windows are richly carved: on the second floor they are adorned with garlands: all the consoles are delicately chiselled, and the tympana adorned with subjects. This façade, seen from the Rue Saint Honoré, presents pretty harmonious lines; but the building is described as too heavy for the slender columns below.

On the Boulevard du Temple the demolition of the theatres has been commenced: most of the trees which shaded the fronts of these theatres have been carefully transplanted to the Boulevard des Filles-du-Calvaire, before the Cirque Napoléon.

At the terminus of the "Nord" railway the works of the new station have been carried on with activity, so that at present one can judge of the *ensemble* of its immense façade. In the axis of the Rue de Denain stands the centre semicircular opening: on the right and left are two others, also semicircular, but of smaller dimensions, forming appendages to the centre one. These three arches will be grouped together by an ornamental gable, and will constitute the most salient portion of the edifice. On each side of this central pavilion an octastyle colonnade will be carried: the first floor will be adorned with statues of the principal manufacturing towns of the north. These colonnades will be joined to the pavilion at the angles, which are encased by coupled pilasters, ornamented by columns on the ground and first floors, and surmounted by triangular pediments, whose projections will correspond with that of the great central gable.

As to the ornamentation, the style, with the exception of the statues of the acroteria, will be very sober in details; and the columns will be of the Doric order. The architectural style of the façade will be suitable to a monument of such importance. It is to be regretted that it is impossible to obtain a view of it except at a short distance. In the interior the long gallery, which stretches at the right of the departure-court, opposite the new buildings of the Administration, is mainly terminated: the roof is just finished. This portion consists of a ground floor only, 24 intercolumniations in length, with corresponding pavilions at each end. Behind this gallery, and in a parallel direction, appears the left side of the new station: this is a long series of arches surmounted by discharging arches, which support the roof. Each of these latter arches embraces two of the lower ones. In the departure-court, opposite the entrance-gate, the pavilion is nearly finished: it consists of three semicircular arcades: that of the middle is surmounted by a pediment, with a circular window or opening for a clock-dial.

The works for the establishment of the Napoleon III. Museum, at the Louvre, not being terminated, the exhibition of this museum at the *Palais de l'Industrie* will continue open till the 1st of November.

THE SECURITY OF OUR BRIDGES.

It is needless for my purpose to advert further to the observations which were lately made in the House of Commons, as to the shaky state of the new Suspension Bridge at Battersea; but I would say one word upon the statement of a friend (for I have myself not yet walked over it), that the new Westminster Bridge shakes so much that he felt very uncomfortable when standing to look at the passing river traffic; and that this has been endorsed by another, who remarks that "it is too shaky for permanence;" and, being a C.E., his opinion may be thought of more value than that of the first, a visitor only. These observations, however, are merely preliminary to the object of this communication, which is to draw some attention to the mode of carrying the roadway of the new Railway Bridge at (Hungerford Market, I suppose, we must not say any more, but) Charing Cross. Having lately had occasion to cross by the old, and now by the assistance of a portion of the new, bridge, I have been greatly interested in the progress of the construction of the works. On the south side, the engineer having commenced the formation of the roadway, I eagerly looked to find to what use those peculiar angle-irons which drop below the two main girders were devoted. These angle-irons consist of two on each side of each girder, that is, there are *four* on each side the roadway. They are each fastened to the side of the bottom iron of the girder by *five rivets:* they are each about 4 inches wide on the inside (I say *about*, because they cannot be reached from the temporary roadway to be measured, but they do not look even 4 inches), and have *seven rivet*-holes in the portion below the girder. To my astonishment I now see that they are intended to carry the iron beams which are to form the roadway: these are made in one piece, to go past the angle-irons and project beyond the girder, to form, I presume, the footpath outside of it. Thus the roadway, and of course the railway trains, are carried by $7 \times 4 = 28$ rivets! and this same weight is secured to the girders by $5 \times 4 = 20$ rivets,—a simplicity of construction to which, as an architect, I should have never thought of trusting. In my simplicity I had always presumed that these same road beams would at least have been carried on the lower flange or plate of the girder, as is usual; and never for once imagined that those huge constructions now spanning the river were only required to drop ropes with some nails stuck through them (in comparison of size), to carry the main way and traffic of the bridge. I have only to add that these road-beams are placed at distances of eleven feet; and that, whilst expressing not my own feelings only of an insecurity of construction in this matter, I would respectfully ask the eminent engineer of this bridge, to afford the public some assurance on this point.

I have noticed that the trains, when going over the new railway bridge at Battersea, generally abate their speed considerably; and have been informed (not authoritatively, of course) that it is on account of the great vibration which would be caused by the proper rate of travelling.

I have also noticed that a similar, or somewhat similar, system of construction to that just now described is being carried out in the plate-iron railway bridges crossing some of the public roads on the south side of the river. Their appearance is anything but satisfactory; a level line with a lot of projections under it; the projections being the road-beams hung up to the girder, by, I suppose, a proportionate number of rivets to those named in the river bridge. Is not all this, cutting construction a little too fine? Has not a celebrated engineer declared that all rivets, sooner or later, would give way? And, although it may be considered in the scientific world a decided advantage to quit the use of cast-iron in bridges, is it wiser, in a practical view, to trust so entirely to such assistance as rivets?

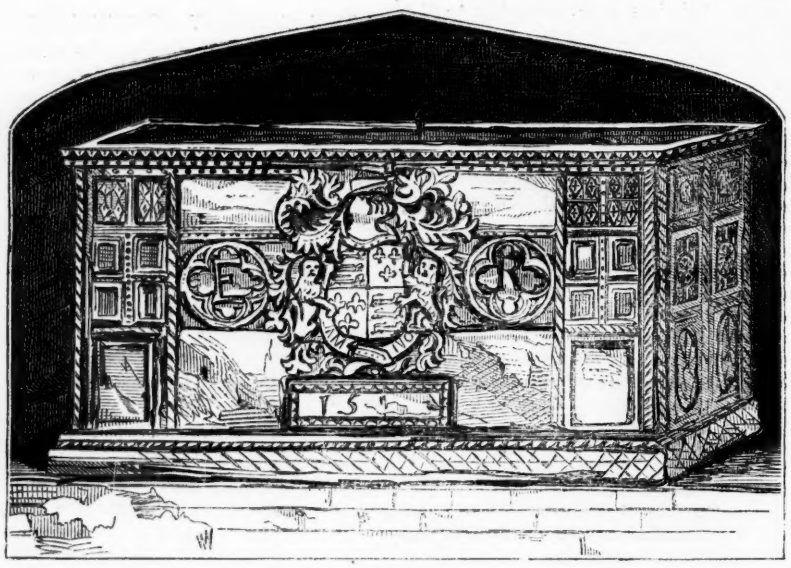
W. P.

P.S. What is doing in the matter of Blackfriars Bridge? I have heard that the whole affair is again put aside, and the bridge to be left as it is.

OLD LEAD-WORK: A CISTERN.

Science has condemned the use of leaden tanks for water; and, indeed, leaden pipes also. Fifty or sixty years ago, leaden cisterns—some of them of large size, and ornamented in various styles and degrees—were to be found in houses of condition, often belonging to the time of Charles II.; and for a considerable period, both before and after, the plumber showed more art than he does now. In parts of England, leaden coffins of great antiquity have been found, which are highly ornamented.

Much as we dislike destroying relics of the past, it is not to be regretted, considering the danger attending leaden cisterns, that within the last half century some thousands of these have been sold and melted in this metropolis alone, not to speak

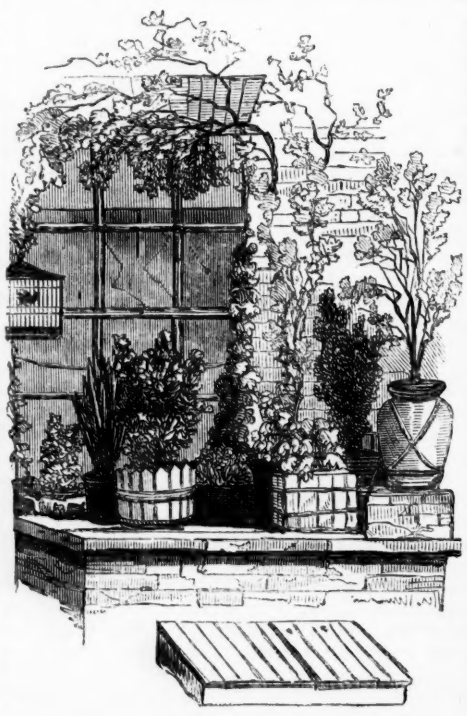


of those which have been removed from country mansions. In Red Lion-square, Ormond-street, and the places surrounding, examples may still be found of the leaden cisterns of Queen Anne's days, or even older: on these there are armorial and other devices, panels, and monograms.

When recently making some inquiries in the east of London, we met with the curious example of which we give an engraving. The commencement of a date is still legible; 15** and the initals E.R. would seem to point to the reign of Edward VI. or Queen Elizabeth as its date; though the supporters of the royal arms have an aspect of even greater antiquity. The cistern was on the premises of a dealer in building materials, who said that it had been brought from some old premises in Crutched-friars; perhaps the Drapers' Almshouses.

A POOR WOMAN'S GARDEN IN THE CITY.

Reference has been made in our pages to a movement which has taken place in certain metropolitan parishes, to encourage the culture of flowers and plants in such situations as can be found for this purpose; and we are glad to learn that, in consequence of the success which has attended the first attempts, efforts are being made in other directions for a similar promotion of the means of adding a beauty to the homes of the poor. Much is to be done in this way, even under difficult circumstances, where there is an inclination.



As an instance, we give a sketch, made on the spot, near Cripplegate Church, Milton's neighbourhood; which in his day was famed for pleasant houses and gardens: now, the population has become dense, and, for the most part, poor; and the greenery has almost vanished from the view. Our view shows an attempt to bring the freshness of the country into a dark and smoky region of the town. The site of this garden is the flat part of the roof of a small out-house or wash-house. A window of a room projects upon it. This apartment is occupied by a poor but seemingly respectable woman; and in the spring-time it is surprising to notice, although the brightness of Hatfield or Blenheim is not to be found, how pleasant these flowers look by contrast with what is around. The means are very humble. A large bushy wall-flower is planted in part of an old butter-tub: in a common wooden box, a hollyhock is coming up: in an old cracked red jar, which has been obtained from some Italian warehouse, is a lilac, — small and sickly, it must be confessed: near the window is a mignionette-box; and in a cracked teapot are some stocks. There is southern-wood, in fair condition; a creeping plant, which shades round the window; a *fleur-de-lis*, and some other matters. "And, sir," said this gardener, "I have, notwithstanding the cold, had some primroses this season." This scene, which, while it is pleasant, is rather touching to look at, is enhanced by the notes of the blackbird that hangs in its cage against the wall. A little boy near said that, in the mornings, it sung so well, that it was almost as good as being in Highgate Woods; and, as the song of this bird could be heard at a considerable distance, it would not be easy to say how many thoughts of other and pleasanter places might be brought to the minds of neighbours by those notes. A taste similar to this we have illustrated might be very extensively cultivated, particularly amongst the children of the national schools.

DESIGN FOR THE NATIONAL ALBERT TESTIMONIAL.

Now that the public have a definite idea of the Great Albert Memorial, they will be enabled to compare its merits with those of other designs suggested by journalists and correspondents. Amongst the many projects put forward within the present year, there is one so precisely analogous to, so entirely identical with, the committee's decision, only differing by possessing *unity*, that the author's letter would possibly (in the language of certain essayists) be deemed "*post-prophetic*," did not the date of its publication (23rd April, 1862) distinctly negative any such charge. The letter is too long for insertion here, but the following is an extract from the *Frome Times*, of the date specified:—

"Erect an obelisk, a little more lofty than the arithmetical *mean* between the extremes of the most celebrated *civic* columns or obelisks existing. Inclose a place or area around it (the spot on which the first Crystal Palace stood). Raise in front of the column an *abacus*, on which should stand an effigy of the lamented Prince, in bronze or marble. On either hand, or at the four angles of the inclosure, erect porticoes or colonnades, semicircular, like those of St. Peter's at Rome, which are eminently beautiful. Within these open corridors or arcades let mural tablets be inserted and carried all along their length; recording, in characters of marble, the benefits conferred on the arts, sciences, agriculture, and literature of the land, during the too brief life of the eminent man and virtuous Prince to whose honour this expressive testimonial would have been raised. Those who remember the grand entrance to St. Peter's at Rome, with Bernini's glorious sculptures, will at once comprehend the design suggested; and the 'Place de la Concorde' is probably familiar to many of our readers.

Hence, in taking St. Peter's as our great original, let it be added, to anticipate objection, that the proposed graceful obelisk and its accompaniment ought to be a *vestibule* to future hopes, if not to future and lasting evidence, of a nation's admiration and gratitude;—yes, to a permanent *Hall of Science*, to be hereafter erected by wide-spread but *limited* subscriptions, for the result of which little apprehension need be entertained. Prince Albert's virtuous, amiable, and useful character will long live in the hearts of the British people; and most happily has the most popular lyrist of the Georgian era registered such sincere sorrow as that which the nation feels:—

'The tear that we shed,
Tho' in secret it rolls,
Will long keep his memory green in our souls.'"

Fromensis.

LONDON AND COUNTY BANK, LOMBARD STREET.

Our illustration shows the front of the Head Office of the London and County Banking Company, recently erected in Lombard-street, from the designs and under the superintendence of Mr. C. O. Parnell, architect to the company. The bank is unfortunate in its site, owing to the central point being taken up by the adjoining premises that form the angle of Lombard-street with Nicholas-lane. The design, as a whole, had necessarily to be abandoned; and the architect has given his ornament to the elevation in Lombard-street; keeping the front towards Nicholas-lane of a less ornate and more sober character. It should be remembered that the London and County Bank differs in its requirements from almost every other bank in London, in not only having a large town business, but in conducting the agencies of more than a hundred of its own branches. In order to render the whole of the space on the ground-floor available for the working of the establishment, the architect has used in the upper floor steel girders, which occupy one-half the depth iron would have required. Two of these, manufactured by Messrs. Brown, Bragg, & Co., of Sheffield, deflected, we are informed, only 1 inch each with a distributed weight of 200 tons. With the external walls, one large column in the centre sustains the superstructure, containing twenty-five rooms, some of large dimensions. This column is calculated to bear 270 tons. The principal staircase is constructed with reference to economy in space. It is circular on plan; and, with its domed vault and arcaded sides, forms an interesting feature. The bank is lighted by sun-burners, and paved with encaustic tiles, as is also the first-floor. The ground and first floor are both built fireproof. The whole of the Portland stone used in the construction came from old Westminster Bridge; and the upper portion of the front, in Nicholas-lane, is faced with Jennings's patent facing bricks. The basement, with its strong-rooms, having been completed by Messrs. George Myers & Sons (who also supplied the fittings to the bank), the first stone was laid by Mr. W. Champion Jones, the vice-chairman, on the 12th of November, 1860; and the bank was opened for business on the 7th of October following; the work having been carried through by Messrs. Jackson & Shaw. The expense incurred in the erection was something under 21,000*l*.

LONDON AND COUNTY BANK.—Mr. C. O. Parnell, Architect.

THE ART-UNION OF LONDON.

The exhibition of pictures and statuary selected by the prizeholders of 1862 is now open, in the Suffolk-street Galleries. It includes Mr. Hughes's picture, "Bed Time;" Mr. Vacher's "Salvator Rosa in the Abruzzi;" "Rotterdam," by Mr. G. Jones, R.A.; "Bedouins in the Lybian Desert," by Mr. W. Luker; "Sunshine," a bust, by Mr. W. Brodie, and many other very excellent works. The intimation that the life-size marble statue, "The Dancing Girl Reposing," by Mr. Calder Marshall, R.A., will form the chief prize in the coming distribution has already excited very lively interest, and will doubtless lead to a great subscription, especially as every member will receive, irrespective of his chance of a prize, an engraving, after Dicksee, of "A Labour of Love," and a set of sixteen designs, in outline, by P. Priolo, illustrating Tennyson's "Idylls of the King." The "Dancing Girl" is now in the International Exhibition: and it may be worth while mentioning that any member having paid his subscription for the current year may have an additional chance of a prize (but without other prints) for every half-guinea subscribed for that purpose.

IMPROVEMENTS AND NEW BUILDINGS IN NOTTINGHAM.

Amongst other works in Nottingham, a new street is being formed from the Poultry to Carlton-street, with a sub-way for the gas and water mains. A new culvert near the Cork Holes, known as the Leen Culvert, has been built. The length of the tunnel is 3,000 feet; the outer diameter, 12 feet; and the inner diameter, 9 feet 2 inches. The object of the tunnel being simply the conveyance of the Leen water and a portion of the town drainage, the structure throughout its whole length does not present much variation. The contractors are Messrs. Thums, Haw, and Wool: they commenced their work on Whit-Monday, and the time for completing the work is next October; though it is hardly expected that the whole will be completed by that date, as the obstacles already encountered have occupied more time than was anticipated. The cost of the culvert will be between 4,500*l.* and 5,000*l.*

Both these works having reached a certain stage, they were visited, on the 15th, by a large party, invited by the mayor and the committees. A luncheon in the culvert followed; when, amongst other toasts, the health of Mr. Tarbotton, the corporation surveyor, under whose advice the sewerage is being done, was drunk; and that of Mr. T. Simpson, the architect of Mr. Fox, who is building in the new street.

Private enterprise accomplishes in this country what imperial resources are required to perform in others. In few towns has this been more strikingly exemplified than in Nottingham within the past few years. The spirit of improvement has been exerted in a laudable manner: old unsightly slums have been swept away or improved: new streets have been projected and built; and the town, formerly confined within narrow limits, has thrown out offshoots over commons and across reclaimed marshes, in shapely and picturesque forms. But it is in the architecture of the business precincts that the greatest improvement has been made. Two instances of this agreeable fact are now afforded in the formation of the new street to which we have alluded, and in the dwelling-houses at the corner of Clarendon and Goldsmith streets. The former has been designed and is being carried out by the firm of Messrs. Simpson & Lynam, architects.

We avail ourselves of some particulars of these works recently given in the *Nottingham Guardian*.

As far as can be judged of the general effect from what has been already done, the new street bids fair to be highly ornamental. We are willing to hope that the example set will be emulated in the other portions of the street. The whole building will consist of three warehouses. Those to be occupied by the successors of Mr. Fox occupy a full half of the new street. Ashlar quoins divide the pile into three sections, and there are sculptured capitals, projecting heads, encaustic tiles, the polychromatic tints of which contrast with the tone of the stonework. The windows of the first-pair floor have pedimented heads, and enriched consoles with pendent festoons of fruit and flowers, supported by a denticulated frieze. Handsome balconies project. "At first sight, it would seem a subject of regret that Victoria-street has not taken a direct line; but, should the south side be made in a corresponding curve, a crescent effect will be produced, with those splendid vanishing lines and bold shadows which more than justify the departure from the popular predilection in favour of straight streets. We believe we are justified in anticipating that Victoria-street, if carried out in conformity with its commencement, will be a palatial avenue erected on the ruins of slums."

The second work consists of Gothic residences, which are being erected by Mr. Tyers, under the superintendence and from the plans of Messrs. Arthur Wilson and S. Dutton Walker, at the corner of Clarendon and Goldsmith streets. The group consists of eight houses, and is already named the Terrace Royal. The style is the Geometric Gothic of the period of the fourteenth century. The principal and largest house fronts Goldsmith-street; and the chief feature of the elevation is an oriel window, carried through the two stories. The Clarendon-street front is broken into four gables, each of which runs back into a mansard roof; and the elevation is further enriched by two banded columns with richly-carved capitals at the angle, over which springs a gable. At the apices of the gables are foliated iron terminals, with gilt leaves. The spouting is of peculiar design, not having been used, that we are aware of, previously in Nottingham, except in the design for the Grammar School, for which Mr. Arthur Wilson was the successful competitor. When this latter edifice will have been completed, it will strike the eye from a distance as being in connexion with the Terrace Royal; and this idea has been acted upon by the architect as very conducive to the enhancement of the picturesque appearance of that part of the town; and, consequently, to the value of the property in the vicinity. Ornamental iron cresting surmounts the spouting, and adds considerably to the aspect of the cornice. The doorways are in pairs, and the spandrels are sculptured.

It is the intention of Mr. Wilson to make the decorations emblematical of the different arts and sciences; and already four figures have been chiselled representing Music, Painting, Sculpture, and Poetry. The windows of the first story are to have representations of the principal members of the Royal Family; and the heads of the Queen and the late Prince Consort will decorate the oriel window facing Goldsmith-street; the portraits of the other royal personages being placed in appropriate positions in other parts of the buildings. Over the windows of the first story is a label which ramps up and forms a sill under those of the second story. Here the windows are similarly treated, but the ornamentation is obtained by foliage. The top row of windows are, if anything, richer than the rest. The dormer windows are both new in design and rich in effect. They combine the square-headed window—which may be a sash if preferred—with tracery; and on the finials, the monogram V. & A. will be shown in ornamental letters, the device being surmounted by a cross and crown, emblematical of the union of Church and State.

The sculpture, both in Clarendon-street and Victoria-street, is described as being well executed.

FEVER AT ROTHERHAM.

The history of sanitary progress at Rotherham is somewhat peculiar. The local board of health, soon after its establishment, adopted a general scheme of drainage and water supply, which, as the *Sheffield and Rotherham Independent* remarks, "if carried out to the full extent originally contemplated, would probably have placed the town in an excellent sanitary position." Unfortunately, the board pressed on their drainage and water system, without having first secured a good supply of water. The works, both of drainage and of water supply, were constructed, but the water supply on which they had depended failed them; and eventually they found themselves at the end of their pecuniary tether, without having provided a sufficiency of water for flushing either the new sewers or the house drains opening into them. Dread of the popular clamour against farther outlay appears to have prevented the local board from insisting on completing the work they had thus begun; and the consequence was that, water-closets having in many cases been substituted for the old cesspools, the drains and sewers, now far more extensive than heretofore, became choked with filth; and the unwillingness of the inhabitants of the town to expend more money in providing the means of cleansing the drains and sewers by a more abundant flow of water, has led to the inevitable consequence—fever, which has for some weeks prevailed to a fatal and alarming extent. The *Independent*, to whom we are indebted for a review of the past and present state of matters, says that the present number of fever patients cannot be less than from 600 to 700. In six weeks there have been fifty-six deaths from fever alone. Low fever was smouldering for months ere it broke fairly out; and its first victims were by no means of the lowest classes of society—a circumstance easily explainable, considering that it would be the well-to-do who would first have their houses connected with the new sewers, and water-closets substituted for cesspools. These classes, it appears, are still severe sufferers; but the fever soon spread among the classes beneath them, and it is now especially rife in such districts as the Orchard at Masborough. The form of fever at first was what is called "low fever," but it has since become more decidedly typhoid and more virulent, being in some cases fatal in a few days, with excessive discoloration; and where the patient survives it is only in a state of complete prostration. Typhoid fever, we need scarcely remind our readers, is now well known to arise from precisely such a cause as foul drains, while typhus fever arises from such causes as overcrowding and sleeping in close rooms.

The local authorities are thoroughly awake to the true causes of the disease, and are urging on the removal of nuisances and cleansing of ashpits, the deodorization and disinfection by chloride of lime, and the collection of water for increased supply.

Now is the time, however, to bring the local obstructives to their senses as regards the cost of an additional supply of water; and surely the moral courage of the members of the local board will now rise to the requisite pitch to induce them to insist on the effectual completion of the good work so well begun.

SLIP AT NEW LAMBETH BRIDGE.

The accident to the suspension bridge over the Thames, now being constructed at Lambeth, occurred through the slipping of one of the iron saddles over which the wire ropes pass at the abutment, on the Middlesex side. It was, in short, forced out of its place. The road is thrown out of level and the suspenders are slightly out of upright; but the engineer, Mr. Barlow, considers it a trifling matter, and that a very short time will suffice to remedy the accident. We must confess that, but for this assurance, the accident would seem to us likely to entail more troublesome consequences.

RAPID BRIDGE-BUILDING.

At a recent entertainment given to the men at the Viaduct Works, Crumlin, Mr. Maynard, one of the suprintendents, said,—"A stone railway-bridge in Portugal had fallen down: Messrs. Kennard were applied to to replace it with an iron bridge, in the shortest possible space of time. The order was received at the Crumlin Works on the 12th July; and the bridge was designed, made, and on its way to the shipping port, on the 1st of August,—that is, in eighteen working days from the receipt of the order. A few particulars respecting the bridge will show the extent of the work thus accomplished. The bridge consisted of three spans, for a railway, the total length being 230 feet: it was to be fixed on iron cylindrical pillars of 6 feet diameter, and it weighed about 300 tons. It contained 2,500 bars and plates, 530 castings, 30,000 rivets, and 8,500 bolts, the whole of which had to be manufactured from the raw material. The plates and bars, having been rolled in Staffordshire, were brought to Crumlin, where 67,000 holes had to be drilled and punched. The rivets were put in, and the parts fitted together, painted, marked, and packed for export; and the whole was accomplished in eighteen working days."

Well done, Messrs. Kennard!

ENCOURAGEMENT TO FOREIGN CAPITALISTS IN SPAIN.

A correspondent of the *Conseiller* of Paris writes, from Madrid, stating that a French company, formed about twelve years ago, had undertaken and executed vast works of embankment in the Bay of Santander. They had reclaimed from the sea lands destined to serve for the enlargement of the town, and on which the railway terminus was to be erected. The concession, perfectly *en règle*, had been approved by two royal orders,—viz., of June, 1850, and August, 1851.

The plan of the new town, which the company were bound to submit to the authorities, had been approved by two other royal orders of January, 1860, and September, 1861; when, on a sudden,

the Council of State puts forth, a few days ago, an opinion (*s'avise*) that the Minister of "*Fomento*," who had made this concession, had no right to do so; and that it was the province of his colleague, the Minister of "*La Gobernacion*."

It proposes, therefore, to annul the concession; or, in other words, "*depouiller*" the company; which now finds itself a victim to the conflict of competition between the two ministers.

It is impossible to assign any reasonable motive for such a decision; and it only remains to be hoped that the Spanish Government will not adopt the measure; for, if it is to be maintained that a company acting with good faith can be plundered, brigand fashion, of the fruit of their labours, in consequence of an error committed by a minister, there will be no future security for the property of any one; and the progressive movement, so profitable to Spain, which has attracted towards important enterprises foreign capitalists, especially from England and France, will find its supply dried up at the very source.

THE FOUNTAINS IN TRAFALGAR SQUARE.

We have made no allusion hitherto to the so-called "improvements" effected in Trafalgar-square, simply because it is disagreeable to find fault; but if our silence is to be misconstrued into approval, we must say at once that the money, as it seems to us, has been spent very unsatisfactorily. Mr. Cowper promised some splendid effects; and the accounts given of sixty-eight jets throwing the water this way, and other groups of jets that way, sounded well, and led to expectations. The result, however, we are forced to say, is exceedingly trumpery. There was a certain air of quiet dignity about the granite basin, with its simple jet, insufficient as the whole was for such a position, and it seemed to say, "I am not more attractive because I don't choose to be so." But the present agglomeration of squirts is at once pretentious, obtrusive, and shabby.

BATH THEATRE COMPETITION.

We understand the directors of the New Theatre Company have selected the design with the motto, "A Midsummer Night's Dream," which proved to be that of Mr. C. J. Phipps, F.S.A., of Bath and London. The second plan, which secured the premium of twenty guineas, had the motto, "Inveniam virtute vincam," and was sent in by Mr. W. Green, of London. The third plan, to which a premium of ten guineas was awarded, was sent by Mr. C. Hansom, of Clifton. The other competitors were—Mr. C. E. Davies, Bath; and Messrs. Hill & Paraire, of London. Mr. Phipps says in his statement:—"Having visited the principal theatres in France, Germany, and Italy; and, specially for the purpose of this competition, all the principal theatres of London; I have come to the conclusion that the model of the old house, with very slight alteration, is the correct one, both as regards beauty of form and convenience of arrangement. The plan of the auditory is slightly varied only from that of the old house. The width on the axis of the diameter is 36 feet, instead of 34 feet; the curtain-opening being 30 feet, instead of 25 feet; the sides inclining from the circle in a line to the proscenium-opening. So, by taking a point 35 feet from the back of the proscenium-wall, I obtain the correct angle of sight; and, as will be seen on the plan, there would not be a bad seat in the house."

CHURCH-BUILDING NEWS.

Victoria Docks.—St. Mark's Church, Victoria Docks, has been consecrated by the Bishop of London. The population has become known pretty generally to the public under the name of "Londoners over the Border." The district has rapidly grown into a large town. At first an iron church was erected, and schools established. A school church was afterwards built, at a cost of 2,500*l.*, defrayed by Mr. Morrison, one of the directors of the Victoria Docks. The Rev. Mr. Douglas, the incumbent, having made an appeal to the public for funds to relieve the physical destitution of his district, so vast an amount flowed in that he determined upon the erection of a church, and the establishment of glove factories, wood-cutting depôts, and other industrial societies, all of which have been successful. The church, built from the designs of Mr. Teulon, has cost 7,000*l.* The Victoria Dock Company gave the site and three or four acres of ground for parsonage, schools, and general church purposes.

West Malling.—Extensive alterations are now being carried on in the parish church here. The stucco by which the external walls of the old church were disfigured has been removed, and the stonework cleansed and pointed: an old doorway, which had been blocked up and concealed, has been reopened, and it is again to be used for the north entrance to the chancel: a window on the same side, which was partially destroyed to make way for a modern doorway, is to be restored to its former condition: the arch over the east window and the upper parts of the mullions are being cleansed from whitewash: hot-air stoves have been fixed: the earth is being removed for concrete, and the floor is to be paved: the old square pews have been removed, to be replaced by free and movable benches. The Archbishop of Canterbury has decided that this may be carried out without a faculty. "The subject which you propose," wrote his Grace, "the securing the free and unappropriated character of the seats for ever, is already the law of the church, and *requires a faculty to set it aside*, not to establish it." The church being closed for a time, the ordinary Sunday services are held in the large quadrangle of Malling Abbey, between the ruins of the old Abbey Church and cloisters; the chapel at the Abbey-gate, which is believed by antiquarians to have been the chancel of a parish church in the fourteenth century, being used for the administration of the Sacrament and for the daily service.

Tenterden.—The foundation-stone of Boar's Isle Church has been laid. The new church is dedicated to St. Michael. The architect is Mr. Gorden Hill.

Winchester. — The chief stone of Cheriton Congregational Chapel has been laid. The edifice will cost from 400*l.* to 500*l.* The site is in the centre of the village. The design was furnished by Mr. Poulton, of Reading, architect, and subsequently adapted to meet the special requirements by Mr. Hunt, of Alresford. The contract for erection was taken by Mr. W. Steel, of Winchester, builder; Mr. H. White executing the stonework. The building will accommodate 200.

Bridport.—Shipton Gorge Church has been consecrated. The new building is named Christ Chapel. It is on a steep hill, south of the village street. The only part of the old chapel that remains is the tower, the outside of which has been newly pointed, and the yellow stone facings rubbed up. The new chapel consists of a nave, north aisle, and chancel. The extreme length is 59 feet, and the breadth 30 feet. The walls are of stone, quarried in the parish, with Ham-hill and Bath-stone dressings, The roof is covered with small dark tiles, and both the chancel and porch are surmounted by ornamental stone crosses. The roof is open, and plastered between the rafters. The building will accommodate 200 persons. The windows, which are somewhat small, but numerous, are filled with semi-transparent glass. The chapel has been built after the designs of Mr. Hicks, of Dorchester, architect, under whose superintendence the whole of the work has been done. Messrs. Swaffield, of Shipton, were the contractors, and did the masonry. The carpenter's work was done by Mr. Hayward, of Burton. Mr. Brown, of Bridport, was the painter and plumber.

Bulcote.—The church at Bulcote has been completely rebuilt on the site of the old structure, and reopened for divine worship. Messrs. Nichols & Bower, of Nantwich, were the architects. The building is in the Pointed style of the thirteenth century. The general plan comprises a nave, chancel with circular end, south porch, and sacristy, surmounted by a bell-gable at the west end. It is constructed principally of Bulwell stone, with carved work, and ornamental bands of red bricks. The interior is fitted up with plain open benches, of pitch pine, and will seat about 130 adults and 30 children. The nave is pierced with plain double-lancet windows. The chancel-arch springs from double shafts, with capitals of carved stonework. The carving was executed by Mr. Irving, of Leicester. Mr. Palmer, of Lowdham, was the contractor. The contract for the building-work amounted to upwards of 900*l.*; but extras, &c., have raised the amount to nearly 1,100*l.*

Cirencester. — At a public meeting held at Cirencester, in connexion with the proposed repair and restoration of the parish church, a report from Mr. Scott was read, to the effect that a general reparation of the whole fabric was requisite, and resolutions were unanimously voted to the effect that Mr. Scott be instructed to prepare the necessary plans and specifications; and, when funds are provided, to procure tenders for the work, including Mr. Haden's for warming the church; that efforts be made to raise 12,000*l.*; that coloured windows and other improvements be accepted as special offerings, &c.

Bristol.—The tower of St. John the Baptist's Church, Bristol, being considered in an unsafe state, the churchwardens and vestry have deemed it their duty to direct a survey to be made of it, which has been done under the direction of Messrs. Pope, Bindon, & Co., architects. The tower will, it is said, have to be taken down and rebuilt.

Taunton.—The opening of St. Mary's Tower has been postponed owing to the work not being in a sufficiently forward state. The day now fixed for the ceremony is Monday, the 8th of September. Several peals have been rung on six of the eight bells, and endeavours are being made to procure a silver cup to be presented to the company of ringers who shall give the best peal on the inauguration day.

Kington.—The Cemetery, situate about a mile from Kington, on the Hay road, has been consecrated by the bishop of the diocese. The ground, an area of about four acres, one half of which is apportioned to Dissenters, was purchased at a cost of 420*l.* The chapel and lodge, which are in the Egyptian style of architecture, were built by contract, by Mr. Roberts, of Pembridge; the architect being Mr. Acock, of Shrewsbury.

Leominster.—The parish church of Leominster has been reported on by Mr. Scott, who states that, to preserve and restore its true character, it will be needful to reconstruct the porch; remodel the debased windows of the south aisle; rebuild the great western window; secure the western tower with its parapets and pinnacles; modify the internal roofs; remove the numberless coatings of whitewash from the walls; and thoroughly repair the external stonework. To effect these works, and refit the interior with oak seats, the estimate is between 8,000*l.* and 9,000*l.* The report has been adopted, and the restorations are to be proceed with.

Eardisley.—Under the direction of Mr. W. P. Herrick, who, we are informed, has subscribed about 2,000*l.* towards the restoration funds, the ancient church of Eardisley has been for the past five months undergoing a restoration. Mr. Dick, who deciphered a number of the inscriptions connected with the prison in the Tower of London, superintends the restoration on behalf of Mr. Christian, the architect to the Ecclesiastical Commissioners. The builder employed is Mr. Williams. The whole of the church, with the exception of the tower, has been taken down, and is to be rebuilt in the style of the former building. A number of corbels of the Norman period, and several Mediæval paintings, have been found.

Llanfihangel Y'nhowyn.—The church of this place has been reopened. The old edifice had become very dilapidated; and some time ago the rector of the parish, the Rev. J. Williams, Rhoscolyn, set about its restoration, which was effected according to the plans and directions of Messrs. Kennedy & Rogers, architects, of Bangor. The building consists simply of a nave, 41 feet long by 17 feet wide, internal dimensions, and has an average height of 9 feet 6 inches to the eaves, and of 18 feet 6 inches to the under-side of the ridge piece. A bell turret rides the western gable. The roof, which is constructed with five principals framed with arched collars, is covered with Bangor slates, and has all the timbers stained and varnished internally. The internal fittings, which are new throughout, are also stained and varnished. The interior is lighted by two square-headed double windows and one single-lighted in the north wall, one treble and one double-lighted window in the south wall, and a treble-lighted arch-headed window, with label outside, in the eastern gable. The cost of the restoration has been from 270*l.* to 300*l.*, and the works have been carried out by Mr. O. Thomas, of Holyhead.

Bromsgrove. — Wythall Church, which has been rebuilt by Mr. Preedy, of London, architect, at a cost of 2,000*l.*, principally raised by local subscriptions, has been consecrated by the Bishop of Worcester.

Stroud.—A vestry meeting has received and considered the report of the committee appointed to rebuild the parish church. The report set forth that the committee was empowered to rebuild at a cost of 5,000*l.*, of which upwards of 4,000*l.* was promised in subscriptions; that the committee had accepted the plans of Mr. Bland, of Birmingham, architect; but that, on tenders being advertised for, the lowest amounted to 7,000*l.* Under these circumstances the committee resigned their trust. A brief discussion ensued, in the course of which it was stated that all the plans professed to be for a 5,000*l.* church; that others were sent by architects of greater experience than

Mr. Bland; and that those of Mr. Wilson, of Bath, and Messrs. Medland & Maberly, of Gloucester, which stood second and third, were guaranteed not to exceed the estimate. The faculty for the rebuilding has already been obtained; and it was stated that the Consistory Court would have to approve any fresh plans which might be submitted. The report was received and adopted, and the meeting dissolved; it being understood that another vestry would be convened if the parish should think proper to take any further steps in the matter.

East Leake.—the foundation-stone of a new Wesleyan Methodist Chapel has been laid at East Leake. The new chapel is to seat 340 persons. It will be a Gothic structure, and will be erected free from debt. The architect is Mr. Henry Lomas; the builder Mr. W. Ellis; both of Nottingham.

STAINED GLASS.

Gloucester Cathedral.—We are asked to say, and do so with pleasure, that the work at the east window was done by Messrs. Ward & Hughes, and not by the firm already mentioned in connexion with it. The window was simply repaired and releaded. "A 'restoration' of the window was at one time contemplated by the Dean and Chapter; but the scheme was abandoned at the earnest request of several antiquaries; and the window has been preserved in its original state at considerably less than half the estimated cost of a restoration."

St. Mark's, Wrexham.—Miss Bennion has ordered stained glass for the centre light of the east window in the newly-erected church of St. Mark, in this town, as a memorial of the Prince Consort. The work, we understand, has been entrusted to Mr. Wailes, of Newcastle.

Christ Church, Hamilton, Canada West.—A memorial window to John and Elizabeth Davidson has been executed by Messrs. James Ballantine & Son, of Edinburgh, for this church. It contains figures of Zechariah and Elizabeth. In the base is introduced an escutcheon, containing monograms of the deceased, with inscription underneath.

Episcopal Church, Agra, India.—A memorial window to Mr. James Steuart, M.D., has been executed by Messrs. Ballantine, of Edinburgh. The subject selected is "Christ raising the Widow's Son." The under portion of this window is occupied by the family arms and inscription, while the portion above the subject contains Early canopy-work.

SCHOOL-BUILDING NEWS.

Backwell (Worcestershire).—The newly-erected national schools at Backwell have been opened. Mr. Lysaght, of Bristol, was the architect; Mr. Wilcox, the builder; and Mr. Harris, the mason. The building is semi-Gothic in style, the stone being supplied from the neighbouring quarries. The exterior is faced with Bath freestone, and the building is roofed with Bridgwater tiles. It contains a large room, which will accommodate a mixed school of 100 children, in addition to class-rooms, and boys' and girls' playground, and adjoining it is a residence for the master. The total cost of the erection was 800*l.*, of which about 500*l.* had been collected prior to the opening.

Sedgley.—The new Congregational day, Sunday, and infant schools, which Mr. Darby, of Sedgley, has just erected at his own expense, have been opened. The cost of the erection, apart from the land, was between 500*l.* and 600*l.* The buildings are on the ground adjoining the Congregational Chapel, in Bilston-street, and contain six rooms. Three rooms are on the ground-floor; one measuring 40 feet by 20 feet for boys; another, 26 feet by 16 feet for infants; and the third, 14 feet by 12 feet for a class-room. There are similar rooms on the second-floor for girls; a library, and class-room.

Colton.—The erection and maintenance of a free reading-room for the inhabitants of Colton, by Mr. T. B. Horsfall, M.P., has been followed by an offer to erect at his own expense new schools for the parish. This offer was accepted, and a committee was formed, of whom the Earl of Lichfield was appointed chairman. The site for the new schools is nearly opposite the parish church. They will be built from designs by Mr. Wm. Culshaw, of Liverpool, architect. Each room will be 30 feet long by 18 feet wide inside, divided by a screen, with a class-room 15 feet by 11 feet 6 inches, and separate porches and playgrounds to each school. The building will be of brick with stone quoins, with open oak porch and open roofs, and turret clock and bell—the estimated cost being about 700*l.*

Rainhill (Liverpool).—The foundation-stone of a new school to be erected in connexion with, and contiguous to, the Wesleyan chapel at Rainhill, has been laid. The new building, which at first will be used merely as a Sunday school, will be 45 feet long by 21 feet wide, and the estimated cost is 300*l.* The school, in harmony with the style of the chapel, will be of Gothic character, built of Rainford stone with Rainhill dressings, and will accommodate about 200 children. The architect is Mr. George Harris, jun., and the builder Mr. G. Harris, sen., both of St. Helen's.

Marsh Lane (Liverpool).—The schools attached to the Roman Catholic Church at this place are now completed. Accommodation is provided for 100 scholars. The building is of brick; the quoins, window-jambs, &c., being dressed bricks. The roof is open-timbered and boarded, stained dark; the gables finished with barge boards; and the entrance protected by a framed ornamental wood porch. The total cost, exclusive of yards and walling, is 200*l.* The architect, was Mr. George Holme, of Liverpool; and the contractor, Mr. Jump, of Bootle.

Manchester.—The chief stone of the Hyde-road schools has been laid. The building, says the local *Courier*, stands on a plot of land near Devonshire-street, Ardwick. The outside dimensions are 26 yards by 20 yards; and there are, besides, open courts and offices at the rear. On the ground story is a room 56 feet by 50 feet, and 16 feet high, with cloak-rooms, class-room, and kitchen and heating chamber adjoining, at the west end: at the other end are the infants' schoolroom, and the main entrance lobbies and staircases by which the several stories are approached. On the next floor is the Sunday schoolroom, 74 feet by 40 feet, and 38 feet from floor to ceiling. Down each side are class-rooms, and above are galleries, running round three sides, with more class-rooms running out of them. There are in all twenty-four class-rooms, which are seated round. The elevation fronting the Hyde-road contains one large window, lighting the principal school, with small ones for the staircases and infants' school. The staircase at the north-east corner is carried up as a tower, and is finished with a quadrilateral slated roof: the extreme height of this will be about 100 feet. The side elevations show on the lowest story the large three-light windows of the day school, and above two tiers of coupled windows, lighting the class-rooms; and above these again, just under the eaves of the main roof, is a continuous clerestory window, shedding full light into the large Sunday schoolroom. The building is proceeding rapidly under the hands of the contractors, Messrs. Moody, Hoyland, & Shaw, who respectively are doing the bricklaying, carpentry, and masonry, from the designs and under the direction of the architect, Mr. J. M. Taylor, of Manchester.

Dundee.—A set of school buildings erected in Annfield-road by Miss Henderson, as a memorial of her late father, Sheriff-Substitute Henderson, have been formally opened by the Bishop of Brechin. The school-house is constructed with an open roof in the English style. It accommodates 100 children, and a teacher's house is annexed.

SOCIETY FOR IMPROVING THE CONDITION OF LABOURING CLASSES.

THE eighteenth annual report of this society has been printed; but we look in vain through it for anything capable of showing how the property of the society is paying; or whether it yields any profit at all, or is a losing concern; although we have always been led to believe that one of its main purposes was to hold out to others evidence of the possibility of improving the condition of the working classes with pecuniary profit to the improvers. The various properties of the society must surely produce some profit, unless they are grossly mismanaged; and those interested in the improvement of the condition of the working classes expect to have a clear and distinct report of the progress of the society as a solvent and profit-yielding speculation. "The society's houses," it appears, "are resorted to not less now than formerly;" but the report no more indicates that any pecuniary profit arises to the society from this circumstance than if there were no rents to realize. In an appendix, certainly, one finds a "balance-sheet" and "an abstract of cash account;" but even from these it would take a clever accountant to draw up a clear statement of the ultimate profit or loss either on any one or on all of the society's houses. But, even were it otherwise in this instance, why is there so ominous a silence on such a subject in the report itself?

Looking to the "abstract of cash account," it would seem that the rents received from the houses during the year amount to 4,696*l.* 14s. 4d., and the "current expenses (including repairs and arrears)," 4,429*l.* 3s. 6d.; besides "interest on loans," mainly used, we suppose, in building or repairing the houses, amounting to 1,063*l.* 13s. 8d.

HOW GET RID OF ANTS?

SIR,—I should be obliged if any of your correspondents could inform me the best means of destroying ants in a building. I have a room infested with them, and two years ago attempted to get rid of them. For this purpose the boards were taken up, and the ground covered with concrete. This seemed to stop them out last year; but with the return of summer they have now appeared in as strong force as ever. C. J. L.

*** We have before now asked this question, and obtained some replies, which we printed. It still comes to us, however, so often, that if a thoroughly efficacious remedy for the annoyance be known, we shall be glad to have it.

CHIMING CHURCH BELLS FOR DIVINE SERVICE.

THE manner of chiming the bells at many churches is so irregular and immethodical, and the effect so offensive to the ear, that the wonder is how such jangling can be suffered even for a few minutes. Take the following case as a specimen of what occurs in various towns and villages every Sunday:—In the centre of an important town, in the Midland Counties, stands a large church, possessing a peal of eight powerful bells, hung in the chamber of a lofty tower, which is admirably constructed for the exit of sound. Here it is the custom to begin by *ringing*—not chiming—and raising the great bell alone. Then two, three, four, or more of the other bells are chimed according to the fancy of the performers; the great bell—still rung—coming in at the end of every alternate round with a tremendous clang, considerably louder than the sound of all the rest. Thus we have a noisy, unmeaning jangle for about half an hour, to the annoyance of numerous parishioners; whereas the bells which call us to church, being in some respects to the whole parish what an organ is to an assembled congregation, ought regularly to give out somewhat subdued, melodious, and soothing music.

What, then, can be done, or how can sweet and appropriate Sabbath bell-music be produced? "Why," some will say, "we can get a machine by means of which a man or a boy can chime a full peal." Now, I am aware that certain machines for chiming have been used, now and then, for many years, and that others have been lately introduced to the public. But these contrivances can only be recommended when a set of persons cannot be depended upon to attend regularly and chime as they ought to do; for good chiming by hand is preferable to any by machinery. And I beg to add, upon high authority—the Rev. W. C. Lukis—that methods of chiming by tying the clappers—except that mentioned below—ought never to be practised, or incalculable mischief may be done to both clappers and bells. We know that the clapper of a church bell is suspended from the staple in such a manner as to move backwards and forwards, and strike the bell each way in the same place, having no lateral motion. If we tie the clapper and pull it directly towards the striking place, well and good; but if we pull it sideways from the ground-truck, we strain it and injure it greatly. Yet this is the common mode of chiming when the clappers are tied. Thus the bells soon get out of order, and ringers find that the clappers do not strike as they used to do. The only way to have chiming without injury, if you will tie the clappers, is to have a small block fixed in the floor in the direct line of their motion, with a second rope to be used for chiming only.

If I might venture to offer an arrangement for chiming methodically, I would suggest the following, which has been practised regularly at various churches, and fully approved. It gives some repose to a musical ear, and warns the parishioners at certain periods of time:—

Begin by chiming softly the first three bells—1, 2, 3, 1, 2, 3, and so on, for ten minutes; then pause five minutes. Then chime, with the utmost regularity and precision, the full peal—1, 2, 3, 4, 5, 6, 7, 8—for ten minutes. All being now silent, at five minutes before the time appointed for the commencement of divine service, ring or chime

the first or treble bell only, being careful to cease before the clock strikes. Some, however, have preferred the solemn tolling of the great bell during these last five minutes.

A similar arrangement can, of course, be applied to a peal of 4, 5, or 6 bells. In all cases 1, 2, or 3 bells may be sufficient for chiming for ordinary week-day services; but, whatever scheme of chiming may be chosen for the respective occasions, provided that it be methodical and pleasing to the ear, it should be strictly adhered to as regards time and manner; because, says another experienced campanologist, the Rev. H. T. Ellacombe, "Everything connected with the ministrations of our church should be conducted *regularly* and *always the same*." THOMAS WALESBY.

ART-CRITICISM.

WHAT appears to me to be a matter of far greater moment than the disputes about a handbook of art, which occurred some time ago,—one which must form a serious obstacle to the advancement of art in this country, and is a very significant circumstance,—is this;—that our artists should betray such exceeding impatience of criticism, of correction, or advice. I say nothing now as to the occurrence itself: that has gone by. I refer only to the fact, that the moment any one has the honesty and courage to hazard an unfavourable judgment on a work of art—public property, so to say, and set up in a public place expressly for the purpose of being submitted to the criticism of every eye—down come upon him a host of artists who desire praise rather than blame. Of course we all like praise, but truth should be dearer to us than our individual credit; for what is the object of art? Not to promote the praise of individuals, but the advancement of truth and the cultivation of the intellect. One would think that half the artists of this country had gone mad. Selfishness, it has been well said, is a bar to all improvement, and is the secret of all our mistakes. What can it signify *who* the writer of a criticism may be, so that he speaks truth, or raises a point for honest criticism? So that truth is unfolded, it cannot matter who it is who assists in this great work.

It seems, however, that our grand object must be "not to hurt people's feelings," which is all quite right, only it is not encouraging art. If we refrain from saying anything that may lead artists to scrutinize more severely their own works for fear of hurting their self-love, and on a grand occasion like the present—which cannot occur again for ten years—ignore the express intention of the late Prince Consort in getting together the art treasures of the world,—viz., the improvement and instruction of the individual artists of the country,—we must be content to be distanced by foreigners, who are not so silly as we are. One might have hoped that all true artists would avail themselves of such an opportunity with delight, instead of indulging in childish personalities, and pique, and jealousy. But I fear, sir, we are not yet sufficiently advanced to bear to hear the truth: we are too thin-skinned for noble emulation, and to bear the brunt of criticism. Our artists like to be thought masters of an art which will ever be the master of them; and I, for one, do feel that, as long as dust is thrown in their eyes by this bowing and apologetic system, we can scarcely advance beyond the sort of art of which the Wellington statue, and many works of the same calibre in London, are the type; and which so justly excite the ridicule of foreigners. As long as vanity and selfishness, and pounds, shillings, and pence, are dearer to artists than the achievement of perfection in their profession, in the nature of things there can be no art worthy of the name.

A LOVER OF ART FOR ITS OWN SAKE.

Miscellanea.

EPITAPHS.—The following inscription, it is said, may be found in an Italian graveyard:—"Here lies Estella, who transported a large fortune to heaven in acts of charity, and has gone thither to enjoy it."

SUSSEX ARCHÆOLOGICAL SOCIETY.—The annual meeting of this Society has been held at Hastings. Amongst other places visited at Hastings were some old houses, one the residence of the mother of Sir Cloudesley Shovel, another that of the infamous Titus Oates, in All Saints'-street, and a quaintly-carved house, No. 82, High-street. The castle, the churches, the caves, and the old town wall were, of course, seen.

AN UNDERGROUND RAILWAY FOR PARIS.—When the Prince Napoleon was in London lately, he went over the underground line; and, on his return to Paris, he reported so strongly in favour of it that the Emperor has already, it is said, ordered a subterranean line from Montmartre to the Louvre, to be commenced forthwith, and has appointed Mr. Fowler consulting engineer to the undertaking.

BURSTING OF THE CHATHAM RESERVOIR.—The reservoir which was recently completed by the Brompton and Gillingham Waterworks Company at great expense, for the supply of the towns of Chatham and Rochester with water, has suddenly burst. The water issued out near the north angle, and forced its way over the land into the turnpike-road leading from Canterbury to London, several feet in depth. The reservoir was so capacious that when filled it contained one million of gallons; and at the time of its bursting it was nearly full. The damage is estimated at about 5,000*l*.

DRINKING-FOUNTAINS IN LONDON AND PARIS. The *Temps* has received a "communicated" note from the Ministry of the Interior in reference to a recommendation which it had published to have drinking-fountains established in Paris, similar to those which are increasing so rapidly in London. The note declares that no comparison can be established between the two capitals on the point, inasmuch as, in Paris, there are not only 1,200 small fountains at the corners of the streets, giving water gratuitously at certain hours to every one that chooses to take it, but likewise 87 large public fountains, open to the world at all hours of the day and night. The same necessity, therefore, for drinking-fountains does not exist in Paris as in London.

"LAMMAS LANDS."—The London-fields, Hackney, were offered to auction on the 11th inst., by Messrs. Edwin Fox & Bousfield. It appears that the fields in question are the property of private individuals, who have an undisputed right to the use of the same during four months of the year; while certain freeholders and copyholders of the manor have a right of "lammas," or pasturage, during the remainder of the year. The consequence of this divided ownership is, that the fields, once a healthful and agreeable place of recreation, have lapsed into such a deplorable condition as to be a nuisance, rather than an advantage, to the locality. The auctioneer suggested that, by the introduction of a Private Bill into Parliament, arrangements could doubtless be made for the freeholders, and those interested in the "lammas," to effect a partition of the land, so that each might obtain the undisturbed and entire control of his own portion: thus the freeholder could develop a successful building enterprise, and the parish acquire a public garden and playground. A spirited competition ensued; but the biddings not reaching the reserved price, the property was declared by the auctioneer to be bought in.

VENTILATORS OR VALVES.—Letters patent have been taken out by Mr. Neil McHaffie, 16, Summer-street, Mile-end, Glasgow, for the invention of "improvements in ventilators or valves for regulating the passage of air or other fluids, whether of a gaseous or liquid form." The specification thus describes Mr. McHaffie's invention:—"According to my invention, when applying a ventilator or valve for admission of external air, I cause the current of air entering to impinge on a surface so arranged that, when the current of air exceeds the velocity considered desirable, the surface may be able to yield to it, and on yielding may close or partially close the valve. When the force of the current diminishes the valve again opens, it being so weighted as always to tend to do so. The arrangement I prefer consists of an inlet valve turning on an axis at the centre of its width. This valve is connected by a suitable connecting-rod to a surface mounted on a horizontal axis at or near its lower end. The said surface is weighted beneath the axis, so that it tends always to assume a vertical position. It is placed at a short distance from the before-mentioned valve within a trunk or passage, which obliges the air or other fluid entering by the said valve to pass the before-mentioned surface. This current of air or other fluid throws the surface into a more or less inclined position according to its strength; and the more inclined the position of the surface the more nearly will the valve be closed. For the passage of liquids this last-mentioned surface should be mounted on a horizontal axis; but instead of being at or near its lower it should be at or near its upper extremity, on account of the greater density of the fluid, the passage of which is sought to be regulated.

THE CHATHAM AND DOVER RAILWAY.—The vestry of St. Mary, Newington, have obtained an injunction to restrain the construction of a bridge over the Walworth-road, now erecting, with a headway of 18 feet over the roadway. The railway company intend at once to have the injunction set aside, as they are advised that it cannot be maintained.

ASCENT OF SALISBURY CATHEDRAL SPIRE.—On Thursday, the 14th instant, James Matthews, a workman in the employ of Mr. Frederick Richard Fisher, of the High-street, builder, performed his annual feat of ascending from the small weather-door, up the iron handles, to the summit of the spire of Salisbury Cathedral, for the purpose of oiling the vane. Before descending, he got astride the iron crossbar above the vane, which is at an altitude of more than 400 feet from *terra firma*.

SANITARY STATE OF CROYDON.—At a recent meeting of the local Board of Health, Dr. Sutherland informed the Board that Dr. Westall had received the quarterly returns from the Registrar-General, comparing the mortality of Croydon with other parts of England. Dr. Sutherland remembered that, when the returns were last produced, Mr. W. Drummond remarked that Croydon had beaten all England. The returns for the present quarter showed that Croydon more than beat all England, having this quarter beaten the country districts of England. In the town districts, the mortality for the quarter ending June 30th was 2·282; in the country districts, 1·968; all England, 2·124; in the parish of Croydon, 1·796. So much for the system of pipe-drainage; carried out, too, with the express purpose of improving the sanitary condition of a town once notorious for fever and ill health.

HALIFAX BOROUGH ENGINEER.—The Halifax Corporation is entering upon quite a revised system for the superintendence of the works under its care. Up to the present time, all the public works have been under the sole management and superintendence of the borough engineer, Mr. G. W. Stevenson, whose salary has been 300*l*. per annum. Now, however, the departments are to be brought more under separate management. A manager of the gasworks has been appointed at 150*l*. a year. A surveyor of the streets, &c., is to be appointed. The work of the borough engineer will, consequently, it is said, be almost *nil*. The Corporation, however, do not propose to discharge him, but his duties are to be materially modified. It has been decided that he may practise privately as an engineer; that he shall attend the meetings of the committees, when requested to do so; to have an office at the town-hall for the deposit of plans, &c., belonging to the Corporation; to give precedence to the business of the Corporation; and to be paid a salary of 100 guineas a year, and 2½ per cent. upon all new works entrusted to him for execution.

UTILIZATION OF THE TIDES.—This is a subject to which attention has occasionally been pointed in the *Builder;* in one instance, it may be remembered, with reference to the working of Westminster Palace clock. Our purpose at present is merely to quote some remarks on the subject from the *Chemical News*. Let us suppose (remarks the writer) that by the action of the tides the difference of level of the surface of the ocean at a certain spot is 21 feet between high and low water. Omitting for the present all consideration of the power of the subjacent liquid, what is the mechanical value of a space of 100 yards square of this water? 100 yards square by 21 feet deep equals 70,000 cubic yards of water, which is lifted to a height of 21 feet, or to 1,470,000 cubic yards lifted to a height of 1 foot. Now, since one cubic yard of water weighs about 1,683 lb., 1,470,000 cubic yards weigh 2,474,010,000 lb., which is lifted in six hours. This is equivalent to lifting a weight of 412,335,000 foot lbs. in one hour; and since one-horse power is considered equivalent to raising 1,800,000 foot lbs. per hour, we have, locked up in every 100 yards square of sea surface, a power equal to a 230 horse-power steam-engine; acting, be it remembered, day and night to the end of time; requiring no supervision; and costing nothing after the first outlay but the wear and tear of machinery. By means of appropriate machinery connected with this tidal movement, any kind of work could be readily performed. Water could be hoisted, or air compressed, to any desired extent; so as to accumulate power for future use, or for transport to distant stations. Light of surpassing splendour could be generated by means of magneto-electric machines; and, with a very little exercise of ingenuity, every lighthouse on the coast could be illuminated with sun-like brilliancy, and with absolutely no expenditure of fuel.

New Application of Coal Oil.—Messrs. Gordon & Henderson, of Gateshead, propose to saturate yarn and ropes with coal oil, either alone or mixed with tar, instead of with boiling tar, as usual. It appears that the invention possesses two important advantages: it diminishes the risk of fire; and at the same time ensures the rope receiving the best possible protection from decay.

Electricity as a Weapon.—An odd idea (says a contemporary) has been suggested to the War Office of Italy,—that of making the lancets of the lancer regiments convey a powerful charge of electricity, so that at the merest touch the foe will be killed by the shock. The first suggestion of electricity as a weapon was made in a paragraph of ours on the coronet of electric light which the French Empress was said to have ordered. In the form here suggested, however, surely electricity would be somewhat supererogatory if the lance-points were in contact with the bodies of the foe.

The Hotel Mania.—"Give these fellows a good thing," says *Mr. Puff* in the "Critic" (we are quoting from memory), "and they never know when they have had enough of it." And so, two morning-guns are let off instead of one. The same occurs with more things than morning-guns. Several large hotels have been wisely built, and several are about to be built. The cry, however, is still "they come." Langham-place, it is arranged, shall have one. Forthwith a company is started to take Lyons Inn, in the Strand, nearly half an acre of ground, and turn it into an hotel. And, as that would be insufficient, we find negotiations are going on for the purchase of Adelphi-terrace, in the Strand, for a similar purpose.

The Electric Light for Streets.—Serrin's apparatus for street-lighting by means of electricity has of late formed the subject of an interesting lecture by Professor Pepper, at the Polytechnic Institution. The lecture was illustrated by Mr. Serrin's apparatus; and the inventor himself conducted the experiments. According to the lecturer, Mr. Serrin's improvements promise to effect the long-desired object of producing a sustained light which can be depended on: the apparatus is what he calls automatic, or takes care of itself, so that the charcoal points, after the battery is once charged, are retained at a measured distance apart, and consumed in the proportion of twenty-two of the positive to ten of the negative. For streets the light was exhibited with Defries's prismatic lanterns, and with ground glass; thus giving a diffused and pleasant light. Mr. Serrin has received the medal of the International Exhibition.

Stained Glass in the Exhibition.—We are reminded that we did not mention in our notice of glass, last week, that Messrs. O'Connor had received the honour of a medal for their work. We had previously stated it; but, as we repeated the statement of reward in connexion with other artists, we gladly do so in this case. We understand, by the way, that the position for which Messrs. O'Connor's window is destined is one exposed to the full glare of a western sun, and more than 20 feet from the ground. Under these circumstances, the defect in it we mentioned may not be felt. The window is very badly placed in the Exhibition, not receiving any direct light. In fact, it is scarcely possible to judge of stained glass in the position assigned it in the building. Nearly all the stained glass is very badly treated. Mr. Sebastian Evans, M.A., the designer of the "Robin Hood" window, wishes us to mention that that window was excluded from competition for a medal, owing to Mr. Chance being a juror in Class 34. The statement that it had received a medal was, therefore, erroneous.

The New Law on Parochial Assessments.—The Act of Parliament to secure uniform and correct valuations of parishes in the unions of England has been printed, and in 46 sections the mode of procedure is detailed. The boards of guardians, as soon as convenient after the passing of the Act, are to form themselves in certain numbers into an "Assessment Committee;" and the authority of the committee appointed for any union is to extend over every parish in such union. The overseers are to prepare valuation lists, and the estimated rental is to be the rent at which the hereditaments might reasonably be expected to let from year to year, free of all rates and taxes. The valuation lists are to be deposited for inspection, and objections may be made to the same. Until a valuation list is made, every parish is to be assessed to the poor-rate under the 6 and 7 Wm. IV. The object of the new law is to obtain a proper assessment of every house in every parish in England, and to prevent complaints that one house is rated beyond another of the same size.

The Albert Harbour for Greenock.—The foundation-stone of a new harbour, to form a local memorial of the late Prince Consort, has been laid with masonic ceremonial at Greenock. The engineers of the work are Messrs. Bell & Miller; the resident engineer, Mr. J. Thompson; and the constructors, Messrs. W. & J. York.

Destruction of the Church of St. Martin, Courtrai.—The journals of Courtrai state that the cause of the fire which destroyed the fine old Church of St. Martin in that town was the electric fluid which fell on the woodwork of the steeple. The church was a very early structure, but was partially reconstructed in the fifteenth century. The spire was assured for 130,000 f., and the other parts for 300,000 f.

The late Mrs. Valentine Bartholomew. We have to record the death of Mrs. Valentine Bartholomew, wife of the well-known artist of that name, herself an artist and poet of ability. It occurred on the 18th inst. We mention this with no slight regret. The advertisement says,—"Her talents and unbounded kindness of heart endeared her to a large circle of friends;" and this we can endorse unreservedly. She inspired affection in all who knew her; and many will miss with pain, on "private-view" days, at artistic *conversazioni*, and in the social circle, the genial and excellent woman who has departed.

Bath.—The Greyhound Hotel has undergone extensive alteration, including an entirely new façade. The style is founded on the Italian Romanesque of the thirteenth century, embracing the free use of constructional polychromatic decoration. The windows of the ground floor have detached shafts of red Mansfield stone and carved caps. On the first floor is an ornamental iron balcony and verandah; and above that are two stories; the couplet windows of the first being divided by marble shafts. The works have been executed by Mr. S. G. Mitchell, from the designs of Mr. C. J. Phipps, F.S.A., architect.

The Prince Consort Memorial.—We understand that the Prince of Wales has addressed a letter to the Earl of Derby, as chairman of the committee appointed to advise her Majesty in reference to the Prince Consort Memorial, expressing the great pleasure with which his Royal Highness had read the recommendations contained in the report of the committee; and intimating his intention of subscribing, at the proper time, the sum of 2,000*l.* towards the erection of the Central Hall suggested as one portion of the general plan.

Proposed Park for North London.—A project has been set on foot for providing a park for the northern districts of the metropolis, on the joint-stock principle. An estate of about 450 acres, within an easy distance of the metropolis, it is said, has been secured. Of this about 200 acres will be set apart as a park, with gardens and ornamental grounds, and such buildings as may be required for recreation and amusement. The surplus land adjoining the park it is proposed to let off for building purposes. The scheme will require good management.

The English Plate-Glass Trade.—Deputations from all the English plate-glass companies, with the president of their association, Mr. R. W. Swinburne, of South Shields, had recently an interview at Mivart's Hotel, London, with Mr. Rouher, the French Minister of Commerce and Agriculture, on the subject of the present high duty on English plate-glass imported into France. The result of this interview will be that a deputation from the English plate-glass manufacturers, with the president of their association, will shortly proceed to Paris to negotiate with the French Government for a modification of the recent commercial treaty, so far as relates to the duties on plate-glass imported into France.

The Ducal Fireman and Steam Fire-Engines.—The Duke of Sutherland, who, from his constant attendance with the engines at London fires, and his general active association with the fire brigade, may be regarded as an experienced authority in such matters, has come to the conclusion that the engines at present in use are very inadequate in power; and, with the aid of the Earl of Caithness, has formed a committee of gentlemen eminent for practical mechanical knowledge, to promote improvements in the construction of these machines. It is to more efficient application of steam as a motive power that the committee will direct their special attention; and it is proposed to offer a number of substantial prizes for the best new inventions. The first meet- of the committee was recently held at Stafford House, and a list of subscriptions towards a fund out of which to pay the premiums for the designs was opened.

Thames Tunnel.—The Tunnel has, of course, benefited by the influx of visitors. In the week ending 16th August, 31,218 passengers passed through, and paid 130*l.* 1s. 6d. in tolls.

The Tenders for Repair of the Licensed Victuallers' Schools, Kennington.—A firm who sign themselves Saunders & Field write to say, with reference to the list we gave last week, that their tender, which was the lowest (560*l.*), was omitted; and that, if accepted, they could have carried out the work for the amount. As the amount of the highest tender sent us was 2,237*l.*, and the lowest 897*l.*, we conclude that the parties to whom we were indebted for the information left out the tender of S. & F. purposely, to lessen the odium attaching to such a list. The stupidity or ignorance of some of the parties who made these discreditable estimates, if we omit any harsher imputation, must be considerable.

Accidents.—By the fall of a scaffold in Swan-street, Manchester, two workmen and a child have been seriously injured. The workmen were on the scaffold when it gave way, and both fell a distance of 30 feet. The child received a scalp wound from a falling brick. One of the men has since died.——At the Walthew House Colliery, Pemberton, near Wigan, a man was seated in the main airway, with four other miners, when a portion of the roof, 12 feet in length and 3 feet 6 inches in thickness, fell, killing him on the spot. ——The roof of a cottage at Sunderland, in which there resided a sailor and about half a dozen other persons, suddenly gave way, and fell in, immuring the inmates in the ruins. By strenuous exertions, the prisoners were released, but all of them had received injuries of a more or less serious character. The building was in a very dilapidated condition.——A rumour has been going about that Mr. George Jennings had been killed by an accident; but we are glad to be able to state that this is not the case. On Tuesday in last week he was passing over Waterloo Bridge on his way to Mill Hill Schools, Hendon, with two of his children, when a cab, driven at a furious rate, struck the wheel of his gig, and that with such force as to break both the shafts. The horse, finding the vehicle on his haunches, dashed violently towards the Strand, kicking to release himself; and at the toll-house Mr. Jennings and his children were pitched out. Although much hurt, all are in a fair way of recovery.

TENDERS.

For villa residence, No. 11, Hungershall Park, Tunbridge Wells, for Mr. Burden. Mr. Henry H. Cronk, architect:—

ACCEPTED TENDERS.

Bricklayers.			
Mercer & Camfield	£651	9	0
Carpenter.			
Pink	541	0	0
Plasterer.			
Mason	398	5	0
Plumber.			
Strange	210	16	8
Stonemason.			
Harland	51	0	0
Smith, &c.			
Catt	52	17	0
	£1,905	7	8

Accepted tender for stabling in connexion with the above, £510.

For villa residence, Tunbridge Wells, for Mr. Edwards. Mr. Henry H. Cronk, architect:—

ACCEPTED TENDERS.

Bricklayers.			
Mercer & Camfield	£676	0	0
Carpenter.			
Noakes	607	18	0
Plumber.			
Strange	270	0	0
Plasterer.			
Twort	451	9	6
Stonemason.			
Jeffery	98	0	0
Smith.			
Catt	29	0	0
	£2,132	7	6

For villa residence for Mr. Churchill, Sand Rock-road, Tunbridge Wells. Mr. Henry H. Cronk, architect:—

Pink	£1,971 0 0
Strange	1,967 0 0
Noakes	1,848 0 0
Widdicombe (accepted)	1,800 0 0

For building a public-house and six houses and shops, in Crucifix-lane, Bermondsey. Messrs. Newman & Billing, architects. Quantities supplied by Messrs. Enoch & Edsall:—

Turner & Sons	£4,035 0 0
Axford & Co.	4,005 0 0
Brass & Son	3,880 0 0
Patrick & Son	3,842 0 0
J. J. & F. Coleman	3,669 0 0
Wells	3,600 0 0
Peake	3,563 0 0
Thompson (accepted)	3,558 0 0

For shop-front, High-street, Deptford. Mr. H. J. Lanchester, architect:—

Penny	£257	0	0
Lester	239	0	0
Pearson (accepted)	173	2	8

For the erection of a warehouse, in Stone-street, Maidstone, for Mr. Charles Arkcoll:—

Bridge & Grensted	£1,288	0	0
Sutton & Vaughan	1,145	0	0
Goodwin	1,143	0	0
Naylor	1,132	0	0
Anscomb (accepted)	1,050	0	0

For the enlargement of Mr. Ballard's shop and premises, High-street, Bedford:—

Reynholds & Son	£600	0	0
Young & Co.	538	0	0
Houghton	528	4	0

For the erection of a pair of semi-detached cottages, for the British Land Company, to be built on their Bower Estate, at Maidstone. Plans prepared by the Company's surveyor:—

Chambers	£640	0	0
Anscomb	605	0	0
Wallis & Clements	560	0	0
Davis	545	0	0
Videau	527	10	0
Pell	523	0	0
Norris (accepted)	513	14	0

For taking down and rebuilding the water-mill, Little Parndon, Essex, for Captain Slark. Quantities supplied by the architect, Mr. W. Wilds, Hertford:—

Glasscock	£1,425	0	0
Rayment	1,290	0	0
Dickerson	1,248	0	0
Hampton	1,213	12	0
Hitch (accepted)	1,135	10	0

And the old materials.

For building shop and dwelling-house at High-street, Notting-hill, for Mr. P. N. Lee. Mr. W. Ward, architect. Quantities supplied:—

Upson	£864	10	6
Moore	740	0	0
Patman & Fotheringham	735	0	0
Elston	697	0	0
Blower (accepted)	646	0	0

For farm-buildings and additions to farm-house, at Obthorpe, near Bourn, on property belonging to the Hon. C. H. Cust. Mr. Edward Browning, architect:—

Pearson	£2,031	0	0
Jeffs & Roberts	1,790	0	0
Storey & Newman	1,723	0	0
Dawson	1,671	0	0
Richardson & Son	1,655	0	0
Mowbray & Bradford	1,627	0	0
Hinson	1,576	0	0
Swann & Carrington	1,490	0	0
Hobson & Taylor	1,435	0	0
Wilson (accepted)	1,400	0	0
Pattinson	1,360	0	0
Gant	1,343	0	0

For farm-buildings at South Hykcham, near Lincoln. Mr. E. Browning, architect:—

Timms	£1,871	0	0
Shelbourne & Hare	1,741	0	0
Kirk	1,611	0	0
Hobson & Taylor (accepted)	1,364	0	0

For the nave and aisles, lower part of tower, and vestry, Christ Church, Pentonville. Mr. Edgar P. Brock, architect. Quantities supplied:—

Brass	£6,235	0	0
Maers	5,600	0	0
Downs	5,570	0	0
Carter	5,540	0	0
Sawyer	5,389	0	0
Perry & Judson	5,205	0	0
Sharpington & Cole	4,797	0	0
Matthews	4,791	0	0
Manley & Rogers (accepted in part)	4,677	0	0

For alterations and repairs to a villa at Herne-hill, for Mr. J. D. Welch. Messrs. Tillott & Chamberlain, architects:—

Ryder	£622	0	0
Brass	548	0	0
Piper & Wheeler (accepted)	525	0	0

For a new church at Llanwarne, Herefordshire. Messrs. Elmslie, Franey, & Haddon, architects:—

Wilson	£2,500	0	0
Mason	2,375	0	0
Lee	2,218	0	0
Jones & Son	1,870	0	0
Welsh	1,850	0	0
Beavan	1,850	0	0
Edwards	1,710	0	0
Morgan	1,695	0	0
Niblett & King (accepted)	1,670	0	0

For the erection of premises, No. 3, Mincing-lane, City. Mr. N. S. Joseph, architect. Quantities by Mr. Meakin:—

Lucas, Brothers	£5,290	0	0
Lawrence & Sons	5,183	0	0
Axford	5,112	0	0
Trollope & Sons	5,084	0	0
Ashby & Horner	5,080	0	0
Ashby & Son	5,025	0	0
Newman & Mann	4,997	0	0
King	4,995	0	0
Mansfield	4,987	0	0
Piper & Wheeler	4,932	0	0
Brown & Robinson	4,931	0	0
Brass (accepted)	4,693	0	0

For alterations to the Penton Arms, Islington. Messrs. Hill & Paraire, architects:—

Clark & Marnock	£670	0	0
Macey	616	0	0
Langmead	605	0	0
Scott	550	0	0

For warehouse, Little Carter-lane, St. Paul's, for Mr. J. K. Farlow. Mr. William Nunn, architect. Quantities furnished:—

Downs	£7,132	0	0
Newman & Mann	6,695	0	0
Patrick	6,542	0	0
Ryder	6,540	0	0
Brass	6,498	0	0
Fish	6,390	0	0
Coleman	6,369	0	0
Lawrence & Sons	6,340	0	0
Wills	5,694	0	0
Hart (accepted)	5,665	0	0

For houses at Clapham-common, for Mr. Reed. Mr. l'Anson, architect:—

Axford	£3,419	0	0
Conder	3,380	0	0
Little	3,244	0	0
Rider	3,134	0	0
Macey	2,888	0	0
Adamson	2,838	0	0
Maclachlan	2,695	0	0

For repairs to 24, Old Jewry, City:—

Carter	£507	0	0
Sharpington & Co.	497	0	0
Patman & Co.	489	0	0
Macey	469	0	0
Ramsey	467	0	0

For alterations to concert-room, Eagle Tavern, City-road:—

Macey	2,593	0	0
Ashby & Co.	2,538	0	0
Bishop	2,430	0	0

For rebuilding Victoria public-house and house adjoining, and a warehouse in rear of the same, King-street, Snow-hill, for Mr. W. Smith. Mr. T. Muncey, architect:—

Duncanson & Moultrie*	£2,800	0	0
Tracey & Co.	1,850	0	0

* Accepted.

For alteration to house, for Mr. Lush, Q C. Mr. Roger Smith, architect:—

Patman & Fotheringham	£1,596	0	0
Colls & Co.	1,586	0	0
Carter	1,570	0	0
Roberts	1,280	0	0

For additions to the Middlesex House of Correction, Cold Bath-fields. Mr. F. H. Pownall, architect:—

Downs	£23,500	0	0
Macey	22,633	0	0
Brown & Robinson	22,500	0	0
Higgs	22,360	0	0
Mansfield	22,345	0	0
Lucas, Brothers	21,349	0	0
Dove, Brothers	21,255	0	0
Hill & Co.	21,240	0	0
Axford	20,265	0	0
Piper & Wheeler	20,200	0	0
Perry & Co.	18,875	0	0

For building a pair of semi-detached villas, at Penge, in Surrey, for Mr. Henry Woollven. Mr. Charles Dunch, architect:—

Baugh & Bryant	£1,749	0	0
Pritchard & Son	1,652	0	0
Perry & Judson	1,492	0	0
Thompson	1,460	0	0
Hearle	1,439	0	0
Curtis	1,345	0	0
Jacobs	1,285	0	0
Brown (accepted)	1,269	0	0

For alterations at No. 271, Three Colt-street, Limehouse, for Mr. Isaac Snape. Mr. Charles Dunch, architect:—

Ebbage	£556	0	0
Hearle	525	0	0
Wood, Brothers	510	0	0
Brown (accepted)	458	0	0

In the list of tenders for the Arundel and Mid-Sussex stations, for quantities were supplied by "Messrs. C. Davis & C. Poland," read "Messrs. C. *Driver* & C. Poland."

TO CORRESPONDENTS.

J. F. C.—W. W.—C. E. D.—C. L. (must make his own deductions as to the best means of ventilation from what is said from time to time in the *Builder*. We have not observed any "earth-closets" in the Exhibition.)—J. G. K.—G. H.—E. & B.—F. K. P.—Carbon Rouge (look to Rickman's "Attempt to Discriminate.")—B. C.—P.—G. C.—E.—T.—W. S.—F. R. W.—T. W. G. (send the photographs: they shall be returned.)—London Householder.—"Albert the Good."—H. B. & B.—E. E.—C. G. Sen.—C. & B.—R. M. P.—W. M. M. (shall hear.)—J. C. H.—H. N. M—J. B.—Mr. M.—J. H. C.—Mr. H.—J. R.—T. B.

NOTE.—*The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.*

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Advertisements cannot be received for the current week's issue later than **FIVE o'clock, p.m.,** *on Thursday.*

ADVERTISEMENTS.

PURSUANT to a Decree of the High Court of Chancery, made in a cause Loat *v.* Loat, the creditors and also the incumbrancers upon the real and leasehold estates of William John Loat, late of Clapham, in the county of Surrey, surveyor, who died in or about the month of August, 1856, are, by their solicitors, on or before the 29th day of OCTOBER, 1862, to come in and PROVE their DEBTS or CLAIMS, at the Chambers of the Master of the Rolls, Rolls-yard, Chancery-lane, Middlesex, or in default thereof they will be peremptorily excluded from the benefit of the said decree. THURSDAY, the 6th day of NOVEMBER, 1862, at TWELVE o'clock at noon, at the said Chambers, is appointed for hearing and adjudicating upon the claims.—Dated this 9th day of August, 1862.

GEO. HUME, Chief Clerk.

Merriman & Brewin, 25, Austin-friars, plaintiff's solicitors.

"THE BUILDER."—January 25th, February 22nd, March 1st and 15th, 1862.
A few clean Copies of the above dates are required.—Apply to the Publisher, at the Office, 1, York-street, Covent-garden, W.C.

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